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NAS CECIL FIELD
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CONTAMINATION ASSESSMENT PLAN FOR BASE FAMILY HOUSING AND 22 BASE REALIGNMENT AND CLOSURE TANK SITESNAS CECIL FIELD FL

5/1/1997

ABB ENVIRONMENTAL SERVICES, INC

(2)

CONTAMINATION ASSESSMENT PLAN
BASE FAMILY HOUSING AND 22 BASE REALIGNMENT AND CLOSURE TANK SITES

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

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Prepared for:

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Naval Facilities Engineering Command
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Bryan Kizer, Code 1842, Engineer-in-Charge

May 1997

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

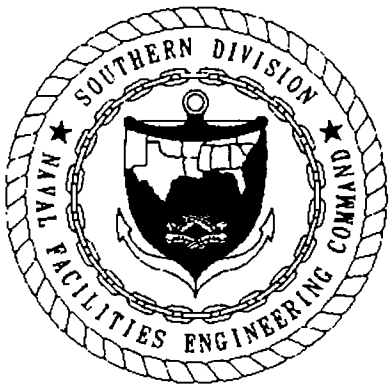
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: May 12, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)



FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long-Term Environmental Action, Navy Underground Storage Tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendment of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility.

The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command manages the Navy UST program, and the Florida Department of Environmental Protection oversees the Navy UST program at Naval Air Station (NAS) Cecil Field.

Questions regarding the UST program at NAS Cecil Field should be addressed to Mr. Bryan Kizer, Code 1842, at (803) 820-5896.

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Base Family Housing and 22 Base Realignment and Closure Tank Sites
Naval Air Station Cecil Field, Jacksonville, Florida

TABLE

Contamination Assessment Plan
Base Family Housing and 22 BRAC Tank Sites
Naval Air Station Cecil Field, Jacksonville, Florida

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	
BRAC	base realignment and closure
CA	contamination assessment
CAP	contamination assessment plan
CAR	contamination assessment report
NAS	Naval Air Station
PCAR	preliminary contamination assessment report
UST	underground storage tank

CONTAMINATION ASSESSMENT PLAN - BASE FAMILY HOUSING AND 22 BASE REALIGNMENT AND CLOSURE (BRAC) TANK SITES

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), has been contracted by Southern Division, Naval Facilities Engineering Command to prepare a contamination assessment plan (CAP) and a health and safety plan for the Base Family Housing sites and 22 BRAC tank sites at U.S. Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The Base Family Housing sites did not receive a clean closure report, and the objective of this investigation is to determine the extent of contamination at each site. An initial assessment will be performed at each of the 22 BRAC tank sites where the tank has been removed and the site did not receive a clean closure.

The Base Family Housing and 22 BRAC tank sites are listed in Table 1. The sites are located throughout NAS Cecil Field. The CAP outlines a strategy for the contamination assessment (CA) field investigation and sampling program that will identify any release of petroleum products from the underground storage tanks (USTs) and aboveground storage tank. The CAP includes a list of sites to be investigated, proposed field investigation and methodologies, and a health and safety plan.

Tank numbers 340, GEN-2, and G558 were included in the original scope of work but were subsequently deleted from the scope because clean closure reports were obtained from the installation or the tank is located in an area of an ongoing contamination assessment. Three tank locations, two at Building 9 and one at Building 72, will be investigated in their place.

2.0 SITE DESCRIPTION AND HISTORY

A list of the sites with site-specific tank information is presented in Table 1. Due to the large number of tanks, individual site descriptions and histories will not be presented. Tanks locations and more detailed construction and installation information can be found in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997).

3.0 FIELD INVESTIGATION

A field investigation will be conducted at each site to assess the presence of petroleum contamination in soil and groundwater (if necessary). The number of soil borings and monitoring wells to be installed at each Base Family Housing site was predetermined in a teleconference between the FDEP, Navy, and ABB-ES representatives on February 13, 1997. Investigations at the 22 BRAC tank sites will be conducted following the protocols presented in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997). Based on the tank capacity, one to five soil borings will be completed at each site to assess the presence of petroleum-contaminated soil. If excessively contaminated soil is detected or the UST is in contact with the groundwater, a temporary monitoring well will be installed at the site to assess the presence of groundwater contamination.

Table 1
Underground Storage Tank and Aboveground Storage Tank Sites Summary

Contamination Assessment Plan
Base Family Housing and 22 Base Realignment and Tank Sites
Naval Air Station Cecil Field, Jacksonville, Florida

Tank Number	Building	Facility	Location (TMP Figure)[1]	Year Installed	Year Removed	Tank Contents	Tank Capacity (Gallons)	UST/AST
Base Family Housing								
402	402	Housing	C-7	1955	1995	M	350	U
404	404	Housing	C-7	1955	1995	M	350	U
405	405	Housing	C-7	1955	1995	M	350	U
406	406	Housing	C-7	1955	1995	M	350	U
420	420	Housing	C-7	1955	1995	M	350	U
428	428	Housing	C-7	1955	1995	M	350	U
431	431	Housing	C-7	1955	1995	M	350	U
437	437	Housing	C-7	1955	1995	M	350	U
440	440	Housing	C-7	1955	1995	M	350	U
Quarters F	F	Housing	C-6	1955	1995	M	350	U
Quarters H	H	Housing	C-6	1955	1995	M	350	U
Quarters J	J	Housing	C-6	1955	1955	M	350	U
Quarters K	K	Housing	C-6	1955	1955	M	350	U
Quarters N	N	Housing	C-6	1955	1955	M	350	U
Other Tank Sites								
9A	9	Fire Station	C-8	1945	1985	D	1,250	U
9-B	9	Fire Station	C-8	1945	1985	D	1,250	U
11-A	11	Steam Generating Plant	C-8	UNK	1986	M	5,000	U
46-D	46	Former Gas Station	C-8	1970	1988	D	6,000	U
46-R	46	Former Gas Station	C-8	1970	1988	A	10,000	U
46-SUL	46	Former Gas Station	C-8	1970	1988	B	6,000	U
46-UL	46	Former Gas Station	C-8	1970	1988	B	10,000	U
72	72	Crash Fire Station	C-9	UNK	UNK	M	500	A
81-A	81	Transportation	C-7	1945	1990	D	3,000	A

See notes at end of table.

Table 1 (Continued)
Underground Storage Tank and Aboveground Storage Tank Sites Summary

Contamination Assessment Plan
Base Family Housing and 22 Base Realignment and Tank Sites
Naval Air Station Cecil Field, Jacksonville, Florida

Tank Number	Building	Facility	Location (TMP Figure)[1]	Year Installed	Year Removed	Tank Contents	Tank Capacity (Gallons)	UST/AST
Other Tank Sites (Continued)								
81-B	81	Transportation	C-7	1945	1990	D	2,000	A
81-C	81	Transportation	C-7	1945	1990	D	3,000	A
98-1	98	Storage Building	C-7	1956	1989	B	150	A
98-2	98	Storage Building	C-7	1956	1989	B	150	A
98-3	98	Storage Building	C-7	UNK	1989	D	150	A
98-4	98	Storage Building	C-7	UNK	1989	O	55	A
288A	288	Standby Generator Building	C-5	UNK	UNK	G	250	A
352-1	352	Weather Shelter	C-9	1987	UNK	L	5,000	A
384	384	Transportation	C-7	1987	UNK	O	275	A
950	950	Traffic Safety Building	C-14	UNK	UNK	K	150	A
G-15	15	Wastewater Treatment Control Building	C-6	1983	1996	G	2,000	U
G-193	193	Standby Generator for Runway	C-12	1981	1995	G	250	U
G327-U	327	Security	C-14	UNK	1995	G	1,000	U

[1] Former location of ASTs and USTs can be found in the Naval Air Station Cecil Field Tank Management Plan (ABB-ES, 1996).

Notes: TMP = Tank Management Plan.
UST = underground storage tank.
AST = aboveground storage tank.
M = fuel/oil.
U = underground storage tank.
UNK = unknown.
D = vehicular gasoline.
A = leaded gasoline.
B = unleaded gasoline.
A = aboveground storage tank.
O = new/lube oil.
G = diesel.
CPO = Chief Petty Officer.
L = waste oil.
K = kerosene.

Soil Borings. Soil samples will be collected every 2 feet from the ground surface until the water table is reached. Soil samples will be screened for total hydrocarbon response by using an organic vapor analyzer equipped with a flame ionization detector, following the headspace analysis method as described in Chapter 62-770 of the Florida Administrative Code.

Monitoring Well Installation. The information gathered during the soil assessment will be used to aid in the placement of permanent and temporary monitoring wells. Monitoring wells will be installed using hollow-stem auger techniques. Permanent monitoring wells will be installed at the Base Family Housing sites (to support the contamination assessment report [CAR] and future monitoring), and temporary monitoring wells will be installed at the BRAC tank sites (to determine the presence or absence of contamination).

The monitoring wells will be constructed of 2-inch inside diameter, schedule 40 polyvinyl chloride pipe with a 10-foot screen. The permanent monitoring wells will be installed in accordance with Southern Division's "Specifications for Groundwater Monitoring Well Installation and Sampling." The temporary monitoring wells will have a filter pack of 20/30 silica sand installed from the bottom of the well to land surface. This well construction will facilitate rapid well abandonment if the groundwater results indicate that no petroleum contamination is present. If groundwater contamination is present and conversion of the temporary well to a permanent monitoring well is required, the top 2 feet of filter pack sand will be removed and 1 foot of 30/65 silica sand will be used as a seal, and the rest of the well will be completed with Type I grout cement. Any permanent monitoring wells will be completed flush with surface grade and equipped with bolted manhole covers and locking caps. All temporary and permanent monitoring wells will be surveyed by a Florida-registered land surveyor.

Groundwater Sampling. Prior to groundwater sampling, the temporary water table monitoring wells will be purged using low-flow techniques. Low-flow purging techniques will be used to minimize excessive turbidity, eliminate the need for filtration, and decrease volumes of contaminated purge water. All groundwater samples collected during the CA will be analyzed for the Gasoline or Kerosene Analytical Groups outlined in Chapter 62-770, Florida Administrative Code.

4.0 REPORT WRITING

Upon completion of the field investigations, ABB-ES will analyze the data collected in the field and prepare a CAR for the Base Family Housing sites and a preliminary contamination assessment report (PCAR) for the 22 BRAC tank sites. The CAR and PCAR will include a discussion of site background information, methodologies used during the investigation, the field and laboratory data in tabular and figure format, an evaluation and discussion of the presence the soil and groundwater contamination at the site, a summary, conclusions, and recommendations for further action at the site. One CAR and one PCAR will be submitted containing the above information for all respective sites.

REFERENCE

ABB Environmental Services, Inc. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina (January).

Southern Division, Naval Facilities Engineering Command. 1997. *Monitoring Well Design, Installation, Construction, and Development Guidelines.* North Charleston, South Carolina (March).

APPENDIX A

SITE-SPECIFIC HEALTH AND SAFETY PLAN FOR CONTAMINATION ASSESSMENT OF BASE FAMILY HOUSING AND 22 BRAC TANK SITES

SITE-SPECIFIC HEALTH AND SAFETY PLAN
FOR CONTAMINATION ASSESSMENT OF BASE FAMILY HOUSING AND 22 BRAC TANK SITES

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

UNIT IDENTIFICATION CODE: N60200

CONTRACT NO: N62467-89-D-0317/139

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May 1997

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Site-Specific Health and Safety Plan
Naval Air Station Cecil Field
Jacksonville, Florida

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Site-Specific Health and Safety Plan
Naval Air Station Cecil Field
Jacksonville, Florida

REFERENCES

The following chapters of the Comprehensive Long-term Environmental Action Navy (CLEAN) Program District I Generic Health and Safety Plan (HASP) are applicable for the work anticipated at the site:

- ✓ 2.0 AUTHORITY AND RESPONSIBILITY OF HEALTH AND SAFETY PERSONNEL
- ✓ 3.0 TRAINING PROGRAM
- ✓ 4.0 MEDICAL SURVEILLANCE PROGRAM
- ✓ 5.0 ENGINEERING CONTROLS
- ✓ 6.0 PERSONAL PROTECTIVE LEVEL DETERMINATION
- ✓ 7.0 MONITORING EQUIPMENT
- ___ 8.0 ZONATION
- ✓ 9.0 WORK PRACTICES
- ___10.0 CONFINED SPACE ENTRY PROCEDURES
- ___11.0 EXCAVATION AND TRENCHING
- ✓ 12.0 TEMPERATURE EXTREMES
  - ✓ HEAT STRESS
  - ___ COLD STRESS
- ✓ 13.0 DECONTAMINATION
- ✓ 14.0 EMERGENCY PLANNING
- ✓ 15.0 HEALTH AND SAFETY FORMS AND DATA SHEETS
  - ___ HEALTH AND SAFETY AUDIT FORM
  - ✓ ACCIDENT REPORT FORM
  - ✓ HEALTH AND SAFETY OFFICER (HSO) CHECKLIST FOR FIELD OPERATIONS
  - ✓ MATERIAL SAFETY DATA SHEETS
  - ___ LIQUI-NOX
  - ___ ETHYL ALCOHOL (denatured)
  - ___ TRISODIUM PHOSPHATE
  - ✓ OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) POSTER
  - ✓ DAILY HEALTH AND SAFETY AUDIT FORM
- ___16.0 RESPIRATORY PROTECTION PROGRAM
- ___17.0 OTHER
  - ___ ILLUMINATION
  - ___ SANITATION
  - ___ HEALTH AND SAFETY AUDIT PROCEDURES

FIGURE

Site-Specific Health and Safety Plan
Naval Air Station Cecil Field
Jacksonville, Florida

TABLE

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BRAC	base realignment and closure
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action, Navy
HASP	Health and Safety Plan
HSM	Health and Safety Manager
HSO	Health and Safety Officer
HSS	Health and Safety Supervisor
NAS	Naval Air Station
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbons
PM	project manager
™	trademark
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

1.1 SCOPE AND PURPOSE. This Health and Safety Plan (HASP) has been prepared in conformance with the Comprehensive Long-Term Environmental Action, Navy (CLEAN) program District I HASP and is intended to meet the requirements of 29 Code of Federal Regulations (CFR) 1910.120. As such, the HASP addresses those activities associated with field operations for this project. Compliance with this HASP is required for all ABB Environmental Services, Inc. (ABB-ES) personnel, contractor personnel, or third parties entering the site.

1.2 PROJECT PERSONNEL.

1.2.1 Project Manager The project manager (PM) is the individual with overall project management responsibilities. Those responsibilities as they relate to health and safety include provision for the development of this site-specific HASP, the necessary resources to meet requirements of this HASP, the coordination of staff assignments to ensure that personnel assigned to the project meet medical and training requirements, and the means and materials necessary to resolve any health and safety issues that are identified or that develop on the project.

1.2.2 General Site Supervisor The general site supervisor is either the PM or the PM's designee who is onsite and vested with the authority by the PM to carry out day-to-day site operations, including interfacing with the site health and safety officer (HSO).

1.2.3 HSO The HSO for this project has been designated by the PM with concurrence of the health and safety supervisor (HSS) or health and safety manager (HSM). The HSO will have at least an indirect line of reporting to the HSM through the HSS for the duration of his or her assignment as project HSO. The HSO is responsible for developing and implementing this site-specific HASP in accordance with the CLEAN HASP. The HSO will investigate all accidents, illnesses, and incidents occurring onsite. The HSO will also conduct safety briefings and site-specific training for onsite personnel. As necessary, the HSO will accompany all U.S. Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), or other governmental agency personnel visiting an ABB-ES site in response to health and safety issues. The HSO, in consultation with the HSS or HSM, is responsible for updating and modifying this HASP as site or environmental conditions change.

1.3 TRAINING. Training is defined under the CLEAN HASP. All personnel entering potentially contaminated areas of this site must complete a 40-hour training program and meet the requirements set by OSHA in standard 29 CFR 1910.120. Personnel without the required training **will not be permitted** in any area with potential for exposure to toxic substances or harmful physical agents (i.e., downrange). Refer to Chapter 3.0 of the CLEAN HASP for further information.

All personnel assigned to an ABB-ES site must participate in the site-specific training presentation, which will cover major elements of the site HASP, as well as health and safety procedures regarding an individual's specific job responsibilities and tasks. The site HSO or health and safety designee will

provide this training before an individual is permitted to work in a downrange position.

1.4 **MEDICAL SURVEILLANCE**. All personnel entering potentially contaminated areas of this site will be medically qualified for site assignment through a medical surveillance program outlined in the CLEAN HASP. Personnel who have not received medical clearance **will not be permitted** in any area with potential for exposure to toxic substances or harmful physical agents (i.e., downrange). Refer to Chapter 4.0 of the CLEAN HASP for further information.

2.0 FACILITY SITE CHARACTERIZATION AND ANALYSIS

2.1 SITE NAME AND LOCATION. The Base Family Housing and 22 Base Realignment and Closure (BRAC) tank sites are located throughout Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. Individual site locations are presented in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997).

2.2 SITE HISTORY AND LAYOUT. Site History and layout are presented in the Environmental Baseline Survey Report. Underground storage tank and aboveground storage tank construction details are presented in the NAS Cecil Field Tank Management Plan (ABB-ES, 1997).

2.3 SCOPE OF WORK (WORKPLAN). ABB-ES will conduct a contamination assessment at the site to evaluate the release of petroleum contamination in soil and groundwater at the Base Family Housing and 22 BRAC tank sites. The field investigation will consist of advancing soil borings and installing shallow temporary monitoring wells.

3.0 TASK ANALYSIS

3.1 TASK ONE.

3.1.1 Hazardous Substances The contaminants of concern known or suspected to be present onsite, along with established exposure limits for those substances, are listed in Table 3-1.

Table 3-1
Contaminants of Concern

Site-Specific Health and Safety Plan
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Approximate Odor Threshold (ppm)	Permissible Exposure Limits (ppm)	Threshold Limit Value (ppm)	Physical Characteristics	Dermal Toxicity	Remarks
Benzene	4.7	1	1	Colorless liquid, pleasant aromatic odor.	Moderate skin irritant.	Inhalation of large amounts attacks central nervous system; chronic poisoning causes leukemia.
Ethylbenzene	140	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Liquid blisters skin; inhalation results in dizziness, depression.
Toluene	0.17	100	100	Colorless liquid, pleasant aromatic odor.	Mild skin irritant.	Ingestion or aspiration can cause pulmonary edema, depressed respiration, kidney and liver damage.
Xylene	0.05	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Inhalation causes headache and dizziness; vapors irritate eyes; can be fatal if ingested.
Naphthalene	--	10	10	Colorless to brown solid with an odor of mothballs.	Moderate skin irritant.	Inhalation causes headache and confusion; vapors irritate eyes.

Notes: ppm = parts per million.
-- = not applicable.

3.1.2 Site Risks The following are the health hazards and safety hazards that are expected to be encountered at the site.

3.1.2.1 **Health Hazards** Petroleum substances to which personnel may be exposed include heating oil, gasoline, diesel fuel, lube oil, and waste oil. The primary constituents of these substances that represent potential health hazards are described below and summarized in Table 3-1.

BENZENE is a colorless liquid with a pleasant aromatic odor. It is a moderate irritant in small amounts both as a gas and as a liquid. If inhaled in large amounts, it attacks the central nervous system, possibly resulting in coma and/or respiratory arrest. Chronic poisoning causes leukemia.

ETHYLBENZENE is a colorless aromatic liquid. It is a moderate skin irritant in gaseous form. Inhalation of high concentrations of the gas may cause temporary irritation of the nose, dizziness, and depression. The liquid form can blister the skin if not washed off immediately.

TOLUENE is a colorless liquid with a pleasant aromatic odor. It is a mild skin irritant. Inhalation of high concentrations of the gas can cause temporary smarting of the eyes or irritation of the respiratory system. If the liquid form is allowed to remain on the skin for a long period of time, smarting and reddening of the skin may occur. Ingestion or aspiration of the liquid causes depressed respiration and pulmonary edema and can result in kidney or liver damage.

XYLENE is a colorless liquid with a sweet odor. It is a moderate skin irritant. When present as a gas in high concentrations, it can cause temporary slight smarting of the eyes or irritation of the respiratory system, headache, and dizziness. The liquid form may cause smarting or reddening of the skin if not washed off immediately. If the liquid is aspirated into the lungs, it can result in severe coughing, distress, and rapidly developing pulmonary edema. If ingested, nausea, vomiting, cramps, headache, and coma can occur and may be fatal. Ingestion may also result in kidney and liver damage.

POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs), for the purposes of this plan and study, include those listed as parameters for USEPA Method 610. Some of the more notable PAHs from this method include acenaphthene, anthracene, chrysene, fluorene, naphthalene, phenanthrene, and pyrene. Details of these compounds are listed in Chapter 4.0.

All activities at this site will be conducted in unconfined areas. This will minimize the chances of exposure of onsite personnel to either high vapor concentrations or strong liquid concentrations of any of the substances described above.

3.1.2.2 **Safety Hazards** Safety hazards include those hazards to which personnel may be exposed that are unrelated to hazardous wastes. These include hazards such as heat stress, snake bites, alligator and wild boar attacks, operation of and presence around heavy equipment, lifting of objects, and vehicle traffic. Extreme caution should be practiced by all personnel while conducting work around drill rigs, backhoes, and other heavy equipment. During hot days, personnel should take time to drink fluids and cool off to avoid overheating and symptoms related to heat stress.

Lifting of heavy objects should be done with caution. Personnel should assist one another with moving heavy objects or use the appropriate equipment to accomplish these tasks. During all site activities, personnel should be aware of the possibility of an encounter with poisonous snakes, particularly rattlesnakes in pine woods.

Power substations, power lines, underground utilities, and underground pipelines are to be avoided during drilling operations. Necessary work permits for activities at the naval facilities will be obtained from the Public Works Department or the appropriate department (e.g., fire department, etc.).

3.1.2.3 **Conclusions and Risk Assessment** Based on all of the available information (nature of the work, potential onsite chemicals and their properties, exposure limits, etc.), hazards associated with conducting the described field-work are considered to be low, assuming appropriate health and safety practices are maintained.

3.1.3 **Protective Measures** The protective measures that will be used at the site are described below:

3.1.3.1 **Engineering Controls** Whenever needed, engineering controls (i.e., fans to blow volatilized chemicals away from the work area) will be used.

3.1.3.2 **Levels of Protection** A Level D work uniform will be used at the site. Level D protection should only be used when the atmosphere contains no known hazard; all potential airborne contaminants can be monitored; and work functions preclude splash, immersion, or the potential for unexpected inhalation or contact with hazardous levels of any chemical.

3.1.4 **Monitoring** It is intended that real-time monitoring instrumentation will be used to monitor the work environment in order to ensure the appropriate level of protection for the site team.

3.1.4.1 **Air Sampling** To the extent feasible, the presence of airborne contaminants will be evaluated through the use of direct reading instrumentation. Information gathered will be used to ensure the adequacy of the levels of protection being used at the site, and may be used as the basis for upgrading or downgrading the levels of protection in conformance with action levels provided in this HASP and at the direction of the site HSO.

The following sampling equipment will be used at the site. Refer to Chapter 7.0 of the CLEAN HASP for information on the calibration and maintenance of the equipment.

- Heath PORTA-FID II (flame ionization detector)

If the FID detects a steady measurable quantity of organic vapors greater than 5 parts per million (above background conditions) in the breathing zone, the field team will withdraw from the site until health and safety conditions at the site are reevaluated.

3.1.4.2 **Personal Monitoring** Personal monitoring will be undertaken to characterize the personal exposure of high-risk employees to the hazardous substances they may encounter onsite. Personal monitoring will be conducted on a representative basis. Personnel who are represented by the sampling will be noted in field logs.

The following personal monitoring equipment will be used at the site. Refer to Chapter 7.0 of the CLEAN HASP for information on the maintenance and calibration of the equipment.

- Thermoluminescent Dosimetry Body Badge

4.0 DATA SHEETS

BENZENE

BNZ

Common Symptoms	Watery liquid	Colorless	Gasoline-like odor
Benzol Benzole	Floats on water. Flammable, irritating vapor is produced. Freezing point is 42°F.		

Avoid contact with liquid and vapor. Keep people away.
Wear goggles and self-contained breathing apparatus.
Shut off ignition sources and call fire department.
Stop discharge if possible.
Stay upwind and use water spray to "knock down" vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose, and throat.
If inhaled, will cause headache, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected area with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Issue warning-high flammability
Restrict access

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** C_6H_6
3.3 **IMO/UN Designation:** 3.2/1114
3.4 **DOT ID No.:** 1114
3.5 **CAS Registry No.:** 71-43-2

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Aromatic; rather pleasant aromatic odor; characteristic odor

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Hydrocarbon vapor canister, supplied air or a hose mask; hydrocarbon-insoluble rubber or plastic gloves; chemical goggles or face splash shield; hydrocarbon-insoluble arpon such as neoprene.
5.2 **Symptoms Following Exposure:** Dizziness, excitation, pallor, followed by flushing, weakness, headache, breathlessness, chest constriction. Coma and possible death.
5.3 **Treatment of Exposure:** SKIN: flush with water followed by soap and water; remove contaminated clothing and wash skin. EYES: flush with plenty of water until irritation subsides. INHALATION: remove from exposure immediately. Call a physician. IF breathing is irregular or stopped, start resuscitation, administer oxygen.
5.4 **Threshold Limit Value:** 10 ppm
5.5 **Short Term Inhalation Limits:** 75 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Leukemia
5.8 **Vapor (Gas) Irritant Characteristics:** If present in high concentrations, vapors may cause irritation of eyes or respiratory system. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 4.68 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 12°F C.C.
6.2 **Flammable Limits in Air:** 1.3%-7.9%
6.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back
6.7 **Ignition Temperature:** 1097°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 6.0 mm/min
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity with Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:**
6 ppm/6 hr/minnow/lethal/distilled water
20 ppm/24 hr/sunfish/TL_m/tap water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 1.2 lb/lb, 10 days
8.4 **Food Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:**
Industrial pure . . . . . 99+%
Thiophene-free . . . . . 99+%
Nitration . . . . . 99+%
Industrial 90% . . . . . 85+%
Reagent . . . . . 99+%
9.2 **Storage Temperature:** Open
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Pressure-vacuum

10. HAZARD ASSESSMENT CODE
(See Hazard Assessment Handbook)

A-T-U-V-W

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	3
Water Pollution	
Human Toxicity	3
Aquatic Toxicity	1
Aesthetic Affect	3
Reactivity	
Other Chemicals	2
Water	1
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 78.11
12.3 **Boiling Point at 1 atm:** 176°F = 80.1°C = 353.3°K
12.4 **Freezing Point:** 42.0°F = 5.5°C = 278.7°K
12.5 **Critical Temperature:** 552.0°F = 288.9°C = 562.1°K
12.6 **Critical Pressure:** 710 psia = 48.3 atm = 4.89 MN/m^2
12.7 **Specific Gravity:** 0.879 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 28.9 dynes/cm = 0.289 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 36 dynes/cm = 0.036 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** 2.7
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.061
12.12 **Latent Heat of Vaporization:** 169 Btu/lb = 94.1 cal/g = 3.94 X 10^5 J/kg
12.13 **Heat of Combustion:** -17,460 Btu/lb = -9698 cal/g = -406.0 X 10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 30.45 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 3.22 psia

NOTES

BNZ	BENZENE

12.17 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
55	55.330
60	55.140
65	54.960
70	54.770
75	54.580
80	54.400
85	54.210
90	54.030
95	53.840
100	53.660
105	53.470
110	53.290
115	53.100
120	52.920
125	52.730
130	52.540
135	52.360
140	52.170
145	51.990
150	51.800
155	51.620
160	51.430
165	51.250
170	51.060
175	50.870

12.18 LIQUID HEAT CAPAICTY

Temperature (degrees F)	British thermal unit per pound-F
45	.394
50	.396
55	.398
60	.400
65	.403
70	.405
75	.407
80	.409
85	.411
90	.414
95	.416
100	.418

12.19 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
75	.988
80	.981
85	.975
90	.969
95	.962
100	.956
105	.950
110	.944
115	.937
120	.931
125	.925
130	.919
135	.912
140	.906
145	.900
150	.893
155	.887
160	.881
165	.875
170	.868

12.20 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
55	.724
60	.693
65	.665
70	.638
75	.612
80	.588
85	.566
90	.544
95	.524
100	.505
105	.487
110	.470
115	.453
120	.438

12.21 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
77.02	.180

12.22 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
50	.881
60	1.171
70	1.535
80	1.989
90	2.547
100	3.227
110	4.049
120	5.033
130	6.201
140	7.577
150	9.187
160	11.060
170	13.220
180	15.700
190	18.520
200	21.740
210	25.360

12.23 SATURATED VAPOR DENSITY

Temprature (degrees F)	Pounds per cubic foot
50	.01258
60	.01639
70	.02109
80	.02681
90	.03371
100	.04196
110	.05172
120	.06317
130	.07652
140	.09194
150	.10960
160	.12980
170	.15270
180	.17850
190	.20750
200	.23970
210	.27560

12.24 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	.204
25	.219
50	.234
75	.248
100	.261
125	.275
150	.288
175	.301
200	.313
225	.325
250	.337
275	.349
300	.360
325	.371
350	.381
375	.392
400	.402
425	.412
450	.421
475	.431
500	.440
525	.449
550	.457
575	.465
600	.474

ETHYLBENZENE

ETB

Common Symptoms	Liquid	Colorless	Sweet, gasoline-like odor
Phenylethane EB	Floats on water. Flammable, irritating vapor is produced.		

Avoid contact with liquid and vapor.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Stop discharge if possible. Keep people away.
Stay upwind and use water spray to "knock down" vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves).
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cook exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose, and throat.
If inhaled, will cause dizziness and/or difficult breathing.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Will burn skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Mechanical containment
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** $C_6H_5CH_2CH_3$
3.3 **IMO/UN Designation:** 3.3/1175
3.4 **DOT ID No.:** 1175
3.5 **CAS Registry No.:** 100-41-4

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Aromatic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Self-contained breathing apparatus; safety goggles.
5.2 **Symptoms Following Exposure:** Inhalation may cause irritation of nose, dizziness, depression. Moderate irritation of eye with corneal injury possible. Irritates skin and may cause blisters.
5.3 **Treatment of Exposure:** INHALATION: If ill effects occur, remove to fresh air, keep him warm and quiet, and get medical help promptly; if breathing stops, give artificial respiration. INGESTION: induce vomiting only upon physician's approval; material in lung may cause chemical pneumonia. SKIN AND EYES: promptly flush with plenty of water (15 min. for eyes) and get medical attention; remove and wash contaminated clothing before reuse.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 200 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 2; LD_{50} = 0.5 to 5 g/kg (rat)
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.
5.10 **Odor Threshold:** 140 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 80°F O.C.; 59°F. C.C.
6.2 **Flammable Limits in Air:** 1.0%-6.7%
6.3 **Fire Extinguishing Agents:** Foam (most effective), water fog, carbon dioxide or dry chemical.
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Irritating vapors are generated when heated.
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to the source of ignition and flash back.
6.7 **Ignition Temperature:** 860°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** 5.8 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity with Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 29 ppm/96 hr/bluegill/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 2.8% (theor.), 5 days
8.4 **Food Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research grade:99.98%; pure grade: 99.5%; technical grade: 99.0%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum.

10. HAZARD ASSESSMENT CODE
(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid.
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	2
Liquid or Solid Irritant	2
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Affect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 106.17
12.3 **Boiling Point at 1 atm:** 277.2°F = 136.2°C = 409.4°K
12.4 **Freezing Point:** --139°F = --95.0°C = 178°K
12.5 **Critical Temperature:** 651.0°F = 343.9°C = 617.1°K
12.6 **Critical Pressure:** 523 psia = 35.6 atm = 3.61 MN/m^2
12.7 **Specific Gravity:** 0.867 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.2 dynes/cm = 0.0292 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 36.48 dynes/cm = 0.03648 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.071
12.12 **Latent Heat of Vaporization:** 144 Btu/lb = 80.1 cal/g = 3.35×10^5 J/kg
12.13 **Heat of Combustion:** --17,780 Btu/lb = --9877 cal/g = -413.5×10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 0.4 psia

NOTES

ETB	ETHYLBENZENE

12.17 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
40	54.990
50	54.680
60	54.370
70	54.060
80	53.750
90	53.430
100	53.120
110	52.610
120	52.500
130	52.190
140	51.870
150	51.560
160	51.250
170	50.940
180	50.620
190	50.310
200	50.000
210	49.690

12.18 LIQUID HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
40	.402
50	.404
60	.407
70	.409
80	.412
90	.414
100	.417
110	.419
120	.421
130	.424
140	.426
150	.429
160	.431
170	.434
180	.436
190	.439
200	.441
210	.443

12.19 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
−90	1.065
−80	1.056
−70	1.047
−60	1.037
−50	1.028
−40	1.018
−30	1.009
−20	1.000
−10	.990
0	.981
10	.971
20	.962
30	.953
40	.943
50	.934
60	.924
70	.915
80	.906
90	.896
100	.887
110	.877
120	.868
130	.859
140	.849
150	.840
160	.830

12.20 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
40	.835
50	.774
60	.719
70	.670
80	.626
90	.586
100	.550
110	.518
120	.488
130	.461
140	.436
150	.414
160	.393
170	.374
180	.356
190	.340
200	.325
210	.311

12.21 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
68.02	.020

12.22 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
80	.202
100	.370
120	.644
140	1.071
160	1.713
180	2.643
200	3.953
220	5.747
240	8.147
260	11.290
280	15.320
300	20.410
320	26.730
340	34.460
360	43.800
380	54.950

12.23 SATURATED VAPOR DENSITY

Temprature (degrees F)	Pounds per cubic foot
80	.00370
100	.00654
120	.01099
140	.01767
160	.02734
180	.04087
200	.05926
220	.08363
240	.11520
260	.15510
280	.20490
300	.26570
320	.33910
340	.42620
360	.52850
380	.64720

12.24 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
−400	−.007
−350	.026
−300	.060
−250	.093
−200	.125
−150	.157
−100	.187
−50	.217
0	.246
50	.274
100	.301
150	.327
200	.353
250	.377
300	.401
350	.424
400	.446
450	.467
500	.487
550	.507
600	.525

TOLUENE

TOL

Common Symptoms	Watery liquid	Colorless	Pleasant odor
Toluol Methylbenzene Methylbenzol	Floats on water. Flammable, irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Shut off ignition sources and call fire department.
Stay upwind and use water spray to "knock down" vapor.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cook exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose, and throat.
If inhaled, will cause nausea, vomiting, headache, dizziness, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, or loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Dangerous to aquatic life in high concentrations.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Issue warning-high flammability
Evacuate area

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** $C_6H_5CH_3$
3.3 **IMO/UN Designation:** 3.2/1294
3.4 **DOT ID No.:** 1294
3.5 **CAS Registry No.:** 108-88-3

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Pungent, aromatic, benzene-like; distinct, pleasant

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Air-supplied mask; goggles or face shield; plastic gloves.
5.2 **Symptoms Following Exposure:** Vapors irritate eyes and upper respiratory tract; cause dizziness, headache, anesthesia, respiratory arrest. Liquid irritates eyes and causes drying of skin. If aspirated, causes coughing, gagging, distress, and rapidly developing pulmonary edema. If ingested, causes vomiting, griping, diarrhea, depressed respiration.
5.3 **Treatment of Exposure:** INHALATION: remove to fresh air, give artificial respiration and oxygen if needed; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 600 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 2; LD_{50} = 0.5 to 5 g/kg
5.7 **Late Toxicity:** Kidney and liver damage may follow ingestion.
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 0.17 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 40°F C.C.; 55° F. O.C.
6.2 **Flammable Limits in Air:** 1.27%-7%
6.3 **Fire Extinguishing Agents:** Carbon dioxide or dry chemical for small fires, ordinary foam for large fires.
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 997°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.7 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available.
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available.
6.12 **Flame Temperature:** Data not available.

7. CHEMICAL REACTIVITY

7.1 **Reactivity with Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 1180 mg/l/96 hr/sunfish/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 0%, 5 days; 38% (theor.), 8 days
8.4 **Food Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research, reagent, nitration-all 99.8 + %; industrial: contains 94 + %, with 6% xylene and small amounts of benzene and nonaromatic hydrocarbons; 90/120: less pure than industrial.
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum.

10. HAZARD ASSESSMENT CODE
(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid.
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Affect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 92.14
12.3 **Boiling Point at 1 atm:** 231.1°F = 110.6°C = 383.8°K
12.4 **Freezing Point:** −139°F = −95.0°C = 178.2°K
12.5 **Critical Temperature:** 605.4°F = 318.6°C = 591.8°K
12.6 **Critical Pressure:** 596.1 psia = 40.55 atm = 4.108 MN/m^2
12.7 **Specific Gravity:** 0.867 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.0 dynes/cm = 0.0290 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 36.1 dynes/cm = 0.0361 N/m at 25°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.089
12.12 **Latent Heat of Vaporization:** 155 Btu/lb = 86.1 cal/g = 3.61 X 10^5 J/kg
12.13 **Heat of Combustion:** -17,430 Btu/lb = 9686 cal/g = -4.05.5 X 10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 17.17 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 1.1 psia

NOTES

TOL	TOLUENE

12.17 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
-30	57.180
-20	56.870
-10	56.550
0	56.240
10	55.930
20	55.620
30	55.310
40	54.990
50	54.680
60	54.370
70	54.060
80	53.750
90	53.430
100	53.120
110	52.810
120	52.500

12.18 LIQUID HEAT CAPAICTY

Temperature (degrees F)	British thermal unit per pound-F
0	.396
5	.397
10	.399
15	.400
20	.402
25	.403
30	.404
35	.406
40	.407
45	.409
50	.410
55	.411
60	.413
65	.414
70	.415
75	.417
80	.418
85	.420
90	.421
95	.422
100	.424
105	.425
110	.427
115	.428
120	.429
125	.431

12.19 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
0	1.026
10	1.015
20	1.005
30	.994
40	.983
50	.972
60	.962
70	.951
80	.940
90	.929
100	.919
110	.908
120	.897
130	.886
140	.876
150	.865
160	.854
170	.843
180	.833
190	.822
200	.811
210	.800

12.20 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
0	1.024
5	.978
10	.935
15	.894
20	.857
25	.821
30	.788
35	.757
40	.727
45	.700
50	.673
55	.649
60	.625
65	.603
70	.582
75	.562
80	.544
85	.526
90	.509
95	.493
100	.477

12.21 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
68.02	.050

12.22 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
0	.038
10	.057
20	.084
30	.121
40	.172
50	.241
60	.331
70	.449
80	.600
90	.792
100	1.033
110	1.332
120	1.700
130	2.148
140	2.690
150	3.338
160	4.109
170	5.018
180	6.083
190	7.323
200	8.758
210	10.410

12.23 SATURATED VAPOR DENSITY

Temprature (degrees F)	Pounds per cubic foot
0	.00070
10	.00103
20	.00150
30	.00212
40	.00296
50	.00405
60	.00547
70	.00727
80	.00954
90	.01237
100	.01584
110	.02007
120	.02518
130	.03127
140	.03850
150	.04700
160	.05691
170	.06840
180	.08162
190	.09675
200	.11400
210	.13340

12.24 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	.228
25	.241
50	.255
75	.268
100	.281
125	.294
150	.306
175	.319
200	.331
225	.343
250	.355
275	.367
300	.378
325	.389
350	.400
375	.411
400	.422
425	.432
450	.443
475	.453
500	.462
525	.472
550	.482
575	.491
600	.500

p-XYLENE

XLP

Common Symptoms	Watery liquid	Colorless	Sweet odor
1,4-Dimethylbenzene Xylol	Floats on water. Flammable, irritating vapor is produced. Freezing point is 56°F.		

Stop discharge if possible. Keep people away.
Call fire department.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear self-contained breathing apparatus.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose, and throat.
If inhaled, will cause dizziness, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Issue warning-high flammability
Evacuate area
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** p-$C_6H_4(CH_3)_2$
3.3 **IMO/UN Designation:** 3.2/1307
3.4 **DOT ID No.:** 1307
3.5 **CAS Registry No.:** 106-42-3

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Like benzene; characteristic aromatic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Approved canister or air-supplied mask; goggles or face shield; plastic gloves and boots.
5.2 **Symptoms Following Exposure:** Vapors cause headache and dizziness. Liquid irritates eyes and skin. If taken into lungs, causes severe coughing, distress, and rapidly developing pulmonary edema. If ingested, causes nausea, vomiting, cramps, headache, and coma. Can be fatal. Kidney and liver damage can occur.
5.3 **Treatment of Exposure:** INHALATION: remove to fresh air; administer artificial respiration and oxygen if required; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 300 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Kidney and liver damage.
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 0.05 ppm
5.11 **IDLH Value:** 10,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 81°F C.C.
6.2 **Flammable Limits in Air:** 1.1%-6.6%
6.3 **Fire Extinguishing Agents:** Foam, dry chemical, or carbon dioxide.
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 870°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.8 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity with Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 22 ppm/96/hr/bluegill/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 0 lb/lb in 5 days
8.4 **Food Concentration Potential:** Data not available

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research: 99.99%; Pure: 99.8%; Technical: 99.0%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE
(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Affect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 106.16
12.3 **Boiling Point at 1 atm:** 280.9°F = 138.3°C = 411.5°K
12.4 **Freezing Point:** 55.9°F = 13.3°C = 286.5°K
12.5 **Critical Temperature:** 649.4°F = 343.0°C = 616.2°K
12.6 **Critical Pressure:** 509.4 atm = 34.65 psia = 3.510 MN/m^2
12.7 **Specific Gravity:** 0.861 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 28.3 dynes/cm = 0.0283 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 37.8 dynes/cm = 0.0378 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.071
12.12 **Latent Heat of Vaporization:** 160 Btu/lb = 81 cal/g = 3.4×10^5 J/kg
12.13 **Heat of Combustion:** −17,569 Btu/lb = −9764.7 cal/g = -406.41×10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 37.63 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 0.34 psia

NOTES

XLP	p-XYLENE

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
60	53.970	60	.412	60	.935	60	.678
65	53.830	70	.418	65	.928	65	.654
70	53.690	80	.424	70	.921	70	.631
75	53.550	90	.429	75	.914	75	.610
80	53.410	100	.435	80	.907	80	.590
85	53.270	110	.440	85	.900	85	.571
90	53.140	120	.446	90	.892	90	.552
95	53.000	130	.451	95	.885	95	.535
100	52.860	140	.457	100	.878	100	.519
105	52.720	150	.462			105	.503
110	52.580	160	.468			110	.488
115	52.440	170	.474			115	.474
120	52.300	180	.479			120	.460
		190	.485				
		200	.490				
		210	.496				
		220	.501				
		230	.507				
		240	.512				
		250	.518				
		260	.524				
		270	.529				
		280	.535				

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temprature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I	60	.096	60	.00183	0	.246
	N	70	.135	70	.00252	25	.259
	S	80	.187	80	.00343	50	.272
	O	90	.255	90	.00459	75	.285
	L	100	.343	100	.00607	100	.297
	U	110	.456	110	.00792	125	.309
	B	120	.599	120	.01022	150	.321
	L	130	.777	130	.01303	175	.333
	E	140	.998	140	.01646	200	.345
		150	1.270	150	.02059	225	.357
		160	1.600	160	.02553	250	.368
		170	1.998	170	.03138	275	.380
		180	2.475	180	.03826	300	.391
		190	3.041	190	.04629	325	.402
		200	3.710	200	.05561	350	.413
		210	4.493	210	.06636	375	.424
		220	5.407	220	.07867	400	.435
		230	6.465	230	.09270	425	.445
		240	7.683	240	.10860	450	.456
		250	9.080	250	.12650	475	.466
		260	10.670	260	.14670	500	.476
						525	.486
						550	.496
						575	.505
						600	.515

5.0 SITE CONTROL

5.1 ZONATION. Due to the nature of the work (multiple soil borings and monitoring well sampling throughout the study area) and the properties of the potential chemicals found onsite, typical exclusion, contamination reduction, and support zones are not necessary or practical at the site. Therefore, where appropriate, a floating exclusion zone in the perimeter of the sampling site will be established to eliminate access to the area by individuals not working on the project or involved in the assessment work. The perimeter will be at least 20 feet in radius and moved accordingly as the assessment points are moved.

5.2 COMMUNICATIONS. When radio communication is not used, the following air horn signals will be employed:

HELP	three short blasts (. . .)
EVACUATION	three long blasts (_ _ _)
ALL CLEAR	alternating long and short blasts (_ . _ .)

5.3 WORK PRACTICES. General work practices to be used during ABB-ES projects are described in Chapter 9.0 of the CLEAN HASP. Work at the site will be conducted according to these established protocols and guidelines for the safety and health of all involved. Specific work practices necessary for this project or those that are of significant concern are described below:

- Work and sampling will be conducted in Level D clothing and equipment.
- While working in a boat or wading in a stream, all personnel will wear a life vest.

6.0 DECONTAMINATION AND DISPOSAL

All personnel and/or equipment leaving contaminated areas of the site will be subject to decontamination, which will take place in the contamination reduction zone. General decontamination practices used during ABB-ES projects are described in Chapter 13.0 of the CLEAN HASP.

6.1 PERSONNEL DECONTAMINATION. All personnel leaving the study area are subject to decontamination (as necessary). The decontamination procedure required will be determined by the nature and level of contamination found at the sites. At a minimum, site personnel will remove loose soil from boots and clothing before leaving the site. More thorough decontamination procedures will be observed as dictated by site conditions. These procedures are described in Chapter 13.0 of the CLEAN HASP.

6.1.1 Small Equipment Decontamination Small equipment will be protected from contamination as much as possible by keeping the equipment covered when at the site and placing the equipment on plastic sheeting, not on the ground. Sampling equipment used at the site will be used only once or will be field cleaned between samples with soapy water (Alconox), rinsed with clean water, rinsed with an approved quality assurance/quality control solvent, and final rinsed with organic-free water.

6.1.2 Heavy Equipment Decontamination Drilling equipment will be protected from contamination as much as possible by placing the equipment on plastic sheeting, not on the ground. The drill rig and associated drilling equipment will be cleaned with high-pressure water or high-pressure steam followed by a soap and water wash and rinse. Loose material will be removed by brush. The person performing this activity will be at the level of protection used during the field investigation.

6.2 COLLECTION AND DISPOSAL OF DECONTAMINATION PRODUCTS. All disposable protective gear, decontamination fluids (for both personnel and equipment), and other disposable materials will be disposed of at the site. Decontamination fluids (e.g., isopropanol from split spoons and groundwater sampling pumps) will be stored in amber glass bottles. Disposable materials (e.g., gloves and Tyveks™) will be bagged and disposed of properly.

7.0 EMERGENCY AND CONTINGENCY PLANNING

This section identifies emergency and contingency planning that has been undertaken for operations at this site. Most sections of the CLEAN HASP provide information that would be used under emergency conditions. General emergency planning information is addressed in Chapter 14.0 of the CLEAN HASP. The following sections present site-specific emergency and contingency planning information.

7.1 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS. The site HSO or the health and safety designee is the primary authority for directing operations at the site under emergency conditions. All communications both onsite and offsite will be directed through the HSO or designee.

7.2 EVACUATION. Evacuation procedures at the site will follow those procedures discussed in Chapter 14.5 of the CLEAN HASP for upwind withdrawal, site evacuation, and evacuation of the surrounding area. Evacuation from the base will be conducted by travelling to the Avenue A gate or the main gate at Avenue D and exiting the base onto 103rd Street (County Road 29).

7.3 EMERGENCY MEDICAL TREATMENT AND FIRST AID. Any personnel injured onsite will be rendered first aid as appropriate and transported to competent medical facilities for further examination and/or treatment. The preferred method of transport would be through professional emergency transportation means; however, when this is not readily available or would result in excessive delay, other transport will be authorized. Under no circumstances will injured persons transport themselves to a medical facility for emergency treatment.

8.0 ADMINISTRATION

8.1 PERSONNEL AUTHORIZED DOWNRANGE. Personnel authorized to participate in downrange activities at this site have been reviewed and certified for site operations by the PM and the HSS. Certification involves the completion of appropriate training, a medical examination, and a review of this site-specific HASP. All persons entering the site must use the buddy system and check in with the site manager and/or HSO before going downrange.

CERTIFIED ABB ENVIRONMENTAL TEAM PERSONNEL:

*+ Rao Angara

*+ Jim Williams

*+ Eric Blomberg

*+ Randy Holloway

*+ Maria Pijnenburg

*+ Jeffrey Tarr

*+ Joe Ullo

OTHER CERTIFIED PERSONNEL:

* FIRST-AID-TRAINED
\+ CPR-TRAINED

8.2 HASP APPROVALS. By their signatures, the undersigned certify that this HASP will be used for the protection of the health and safety of all persons entering this site.

Health and Safety Officer	Date
Project Manager	Date
Health and Safety Manager/Supervisor	Date

8.3 FIELD TEAM REVIEW. I have read and reviewed the health and safety information in the HASP. I understand the information and will comply with the requirements of the HASP.

NAME: _____

DATE: _____

SITE/PROJECT: _____

8.4 MEDICAL DATA SHEET. This Medical Data Sheet will be completed by all onsite personnel and kept in the support zone during site operations. It is not a substitute for the Medical Surveillance Program requirements consistent with the CLEAN HASP. This data sheet will accompany any personnel when medical assistance or transport to hospital facilities is required. If more space is required, use the back of this sheet.

Project: _____

Name: _____

Address: _____

Home Telephone: Area Code (___) _____

Age: _____ Height: _____ Weight: _____

In case of emergency, contact: _____

Address: _____

Telephone: Area Code (___) _____

Do you wear contact lenses? Yes ( ) No ( )

Allergies: _____

List medication(s) taken regularly: _____

Particular sensitivities: _____

Previous/current medical conditions or exposures to hazardous chemicals:

_____

Name of personal physician: _____

Telephone: Area Code (___) _____

8.5 EMERGENCY TELEPHONE NUMBERS.

(On base) Security	(904) 778-5381
(On base) Rescue	(904) 778-5212
Primary Hospital (St. Vincent's Hospital)	(904) 387-7395
Alternate Hospital (Riverside Hospital)	(904) 387-7070
Base Fire Department	(904) 778-5333
Poison Control Center	(800) 962-1253
National Response Center	(800) 424-8802
Regional USEPA Emergency Response	(800) 414-8802
Site HSO: Jeff Tarr	(904) 779-0077
General Site Supervisor: Eric Blomberg	(904) 656-1293
Project Manager: Rao Angara	(904) 656-1293
ABB Environmental HSM: C.E. Sundquist	(207) 775-5401 x 101

8.6 ROUTES TO EMERGENCY MEDICAL FACILITIES. The primary source of medical assistance for the site is the following:

St. Vincent's Hospital
1800 Barrs Road
Jacksonville, Florida

DIRECTIONS TO PRIMARY HOSPITAL: Exit NAS Cecil Field via the main gate and travel northeast on Highway 228 approximately 12.5 miles to Barrs Road; turn right; travel 0.05 mile on Barrs Road. The hospital is on the right side of the road (see Figure 8-1).

The alternate source of medical assistance for the site is the following:

Riverside Hospital
2033 Riverside Avenue
Jacksonville, Florida

DIRECTIONS TO ALTERNATE HOSPITAL: Exit NAS Cecil Field via the main gate and travel northeast on Highway 228 approximately 13 miles to Margaret Street; turn right; travel 0.03 mile on Margaret Street. The hospital is on the right side of the street (see Figure 8-1).

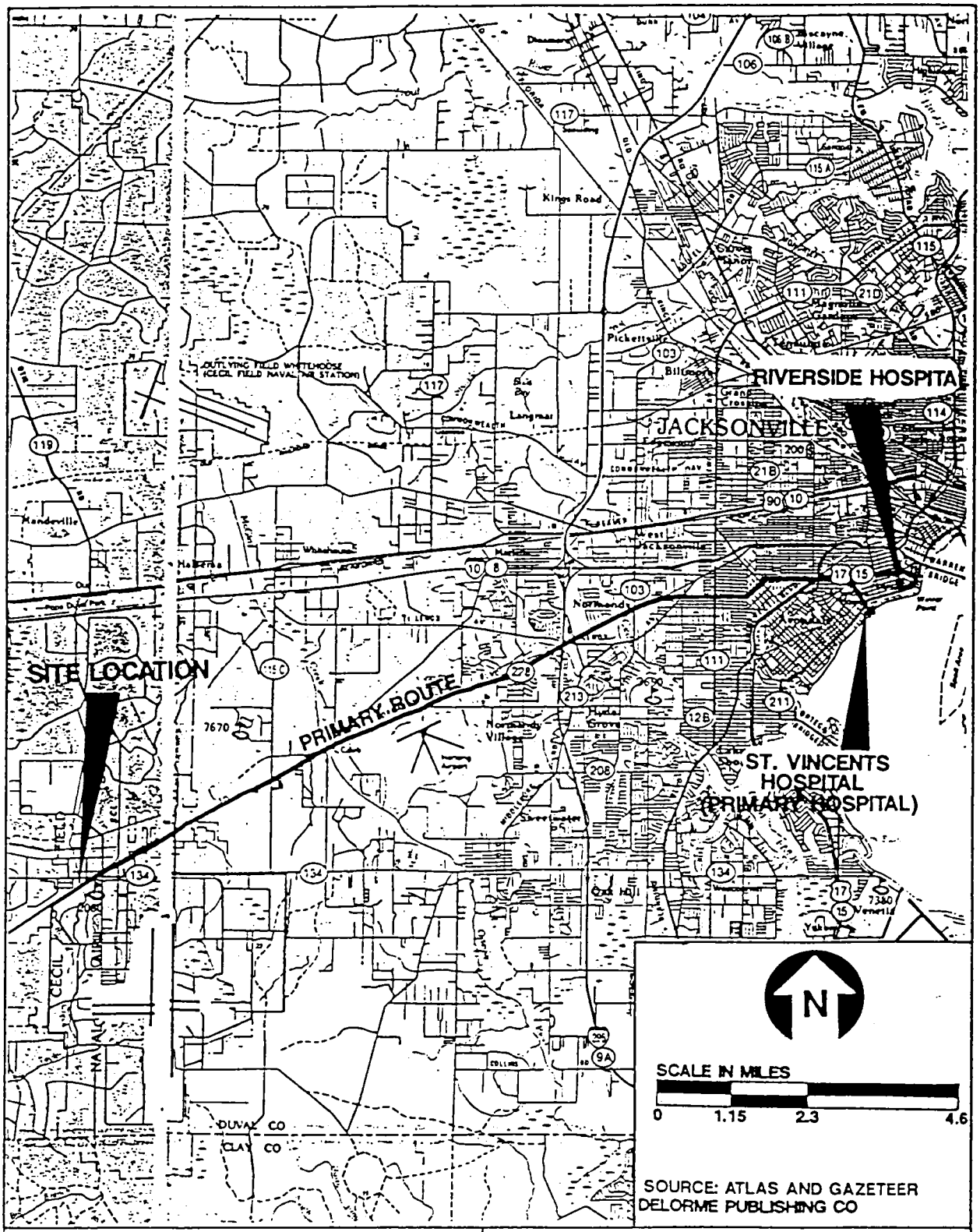

FIGURE 8-1
ROUTE TO ST. VINCENTS HOSPITAL
AND RIVER SIDE HOSPITAL

HEALTH AND SAFETY PLAN

NAS CECIL FIELD
JACKSONVILLE, FLORIDA

REFERENCE

ABB Environmental Services, Inc. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina (January).

NEW DOCUMENT

ABB

8571-0001

May 12, 1997

Commanding Officer
Souther Division Naval Facilities Engineering Command
1255 Eagle Drive
North Charleston, SC 29418
Attention: Mr. Bryan Kizer, Code 1842

Subject: **Contamination Assessment Plan**
Base Family Housing and 22 Miscellaneous Tank Sites
NAS Cecil Field, Jacksonville, Florida
Contract No. N62467-89-D-0317/139

Dear Bryan:

Attached please find two copies of the Contamination Assessment Plan (CAP) for the Base Family Housing and the 22 Miscellaneous tank sites located at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The health and safety plan has been included as an attachment to the CAP. Two copies of the subject document have also been provided to Mr. Dave Kruzicki, NAS Cecil Field.

If you have any questions or comments please call me at 904-656-1293 (x 314). Thank you.

Very truly yours,

ABB ENVIRONMENTAL SERVICES, INC.

Rao Angara
Task Order Manager

cc: David Kruzicki, NASCF
File

Sponsor
Special Olympics
World Games
Connecticut 1995

ABB Environmental Services Inc.

Berkeley Building
2590 Executive Center Circle East
Tallahassee, Florida 32301

Telephone (904) 656-1293
Fax (904) 877-0742

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

QUARTERS J, TANK QUARTERS J

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Jacksonville, Florida

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Confirmatory Sampling Report
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Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
FAC	Florida Administrative Code
ISI	Innovative Services International, Inc.
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for the Quarters J tank at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

The Quarters J tank was an underground storage tank (UST) located on the east side of Quarters J, a house for junior officers (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). The Quarters J tank was removed by Innovative Services International, Inc. (ISI), on May 30, 1995. A closure assessment report (Appendix A) was prepared for the Quarters J tank and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that groundwater analytical results (toluene at 180 micrograms per liter) were above State target levels. To assess the current groundwater quality at Quarters J, a contamination assessment plan was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Quarters J was initiated in July 1997 and included

- the installation of one shallow groundwater monitoring well, and
- collection and analysis of one groundwater sample.

One monitoring well, CEF-J-1S, was installed at the former UST location to a depth of 15 feet below land surface. One groundwater sample was collected on August 7, 1997, and analyzed for the Kerosene Analytical Group parameters. A general site plan indicating the location of monitoring well CEF-J-1S is presented on Figure 2. The monitoring well installation detail is included in Appendix B.

3.0 SCREENING AND ANALYTICAL RESULTS

No contaminants were detected in the groundwater sample collected from monitoring well CEF-J-1S. Analytical results from the closure assessment and the confirmatory sampling event are summarized in Table 2. The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

No contaminants were detected in the groundwater sample collected from monitoring well CEF-J-1S. Therefore, no further action is recommended for the Quarters J tank site.

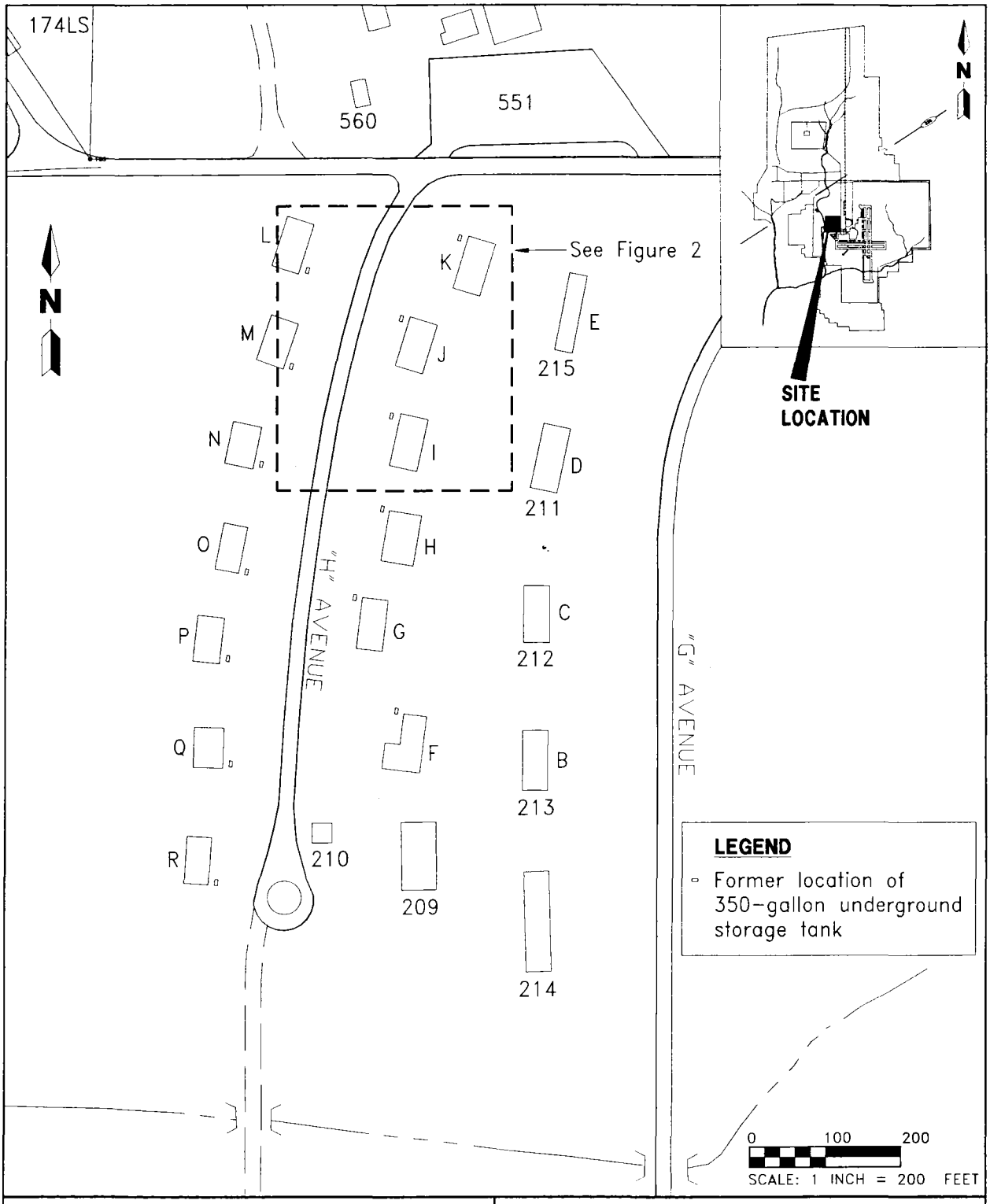


FIGURE 1
TANK QUARTERS J
BASE FAMILY HOUSING

K:\02549\02549-03\CAR\02549550.DWG, NP 01/08/98 13:13:30, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
QUARTERS J, TANK QUARTERS J

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-QtrJ.CSR
SAS.01.98

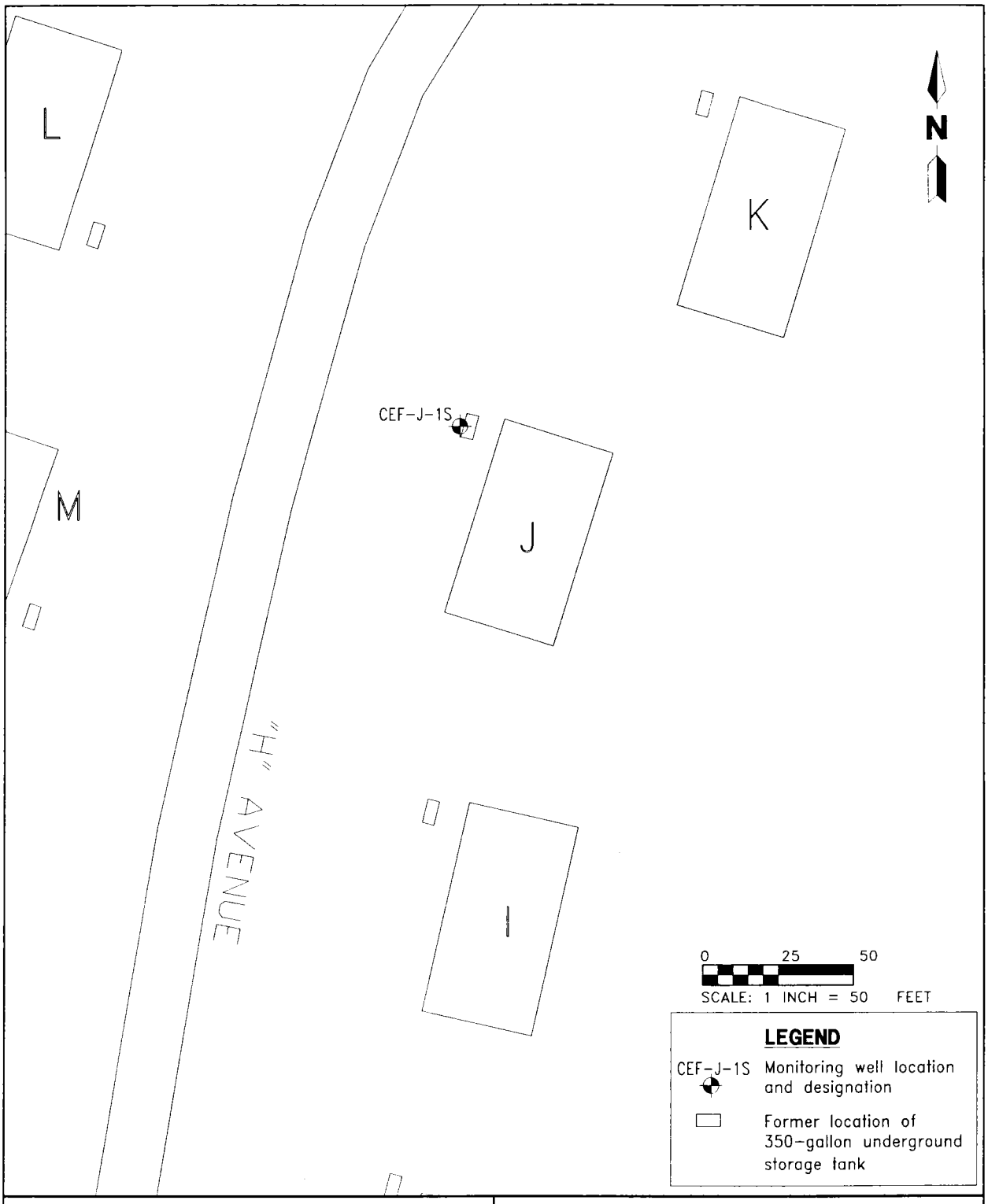


FIGURE 2
MONITORING WELL LOCATION

K:\02549\02549-03\CAR\02549551.DWG, NP 01/08/98 13:35:07, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
QUARTERS J, TANK QUARTERS J

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Quarters J, Tank Quarters J
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells		Groundwater Cleanup Target Levels[1]
	ISI Temporary Well	CEF-J-1S	
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Toluene	180	ND	40
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)			
No compounds detected.			
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)			
TRPH	0.553	ND	5
Lead (USEPA Method 239.2) (µg/ℓ)			
Lead	153	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on June 26, 1995, and by ABB Environmental Services, Inc., on August 7, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
ND = compound not detected.
FL-PRO = Florida-Petroleum Residual Organic.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storag system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incer tive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: July 10, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Officer Housing Unit "J"
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (_____) 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or XX Underground
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): (Circle one) A. Replaced XX. Removed C. Closed in Place D. Upgraded (aboveground tanks only
13. Number of Tanks Closed: One (1) 14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☒	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☐	☒	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target level (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____

DER Form 17-761.900(6)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations, and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner	Date
Signature of Person Performing Assessment	7/12/95 Date
Professional Geologist	
Title of Person Performing Assessment	

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene 1 ug/l
   b. Total VOA 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Enlist Telephone: (____) _____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing Unit "J"
4. Owner Name: U.S. Navy Telephone: (____) _____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time _____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown

Date Work Initiated: 5/30/95 9. Date Work Completed: 6/2/95

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these instututions.

Underground Pollutant Tank Removal Checklist

Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☒

Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District 160 Governmental Center Pensacola, Florida 32501-5794 | Northeast District 7825 Baymeadows Way, Suite B 200 Jacksonville, Florida 32256 | Central District 3319 Maguire Blvd Suite 232 | Southwest District 4520 Oak Fair Blvd | South District 2269 Bay St | Southeast District 1900 S Congress Ave Suite A

DER Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Contract Contractor
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Robert M Boardman — PCC 054952

(Type or Print)
Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PSSSC Number

[signature] — 7-12-95

Certified Tank Contractor Signature — Date

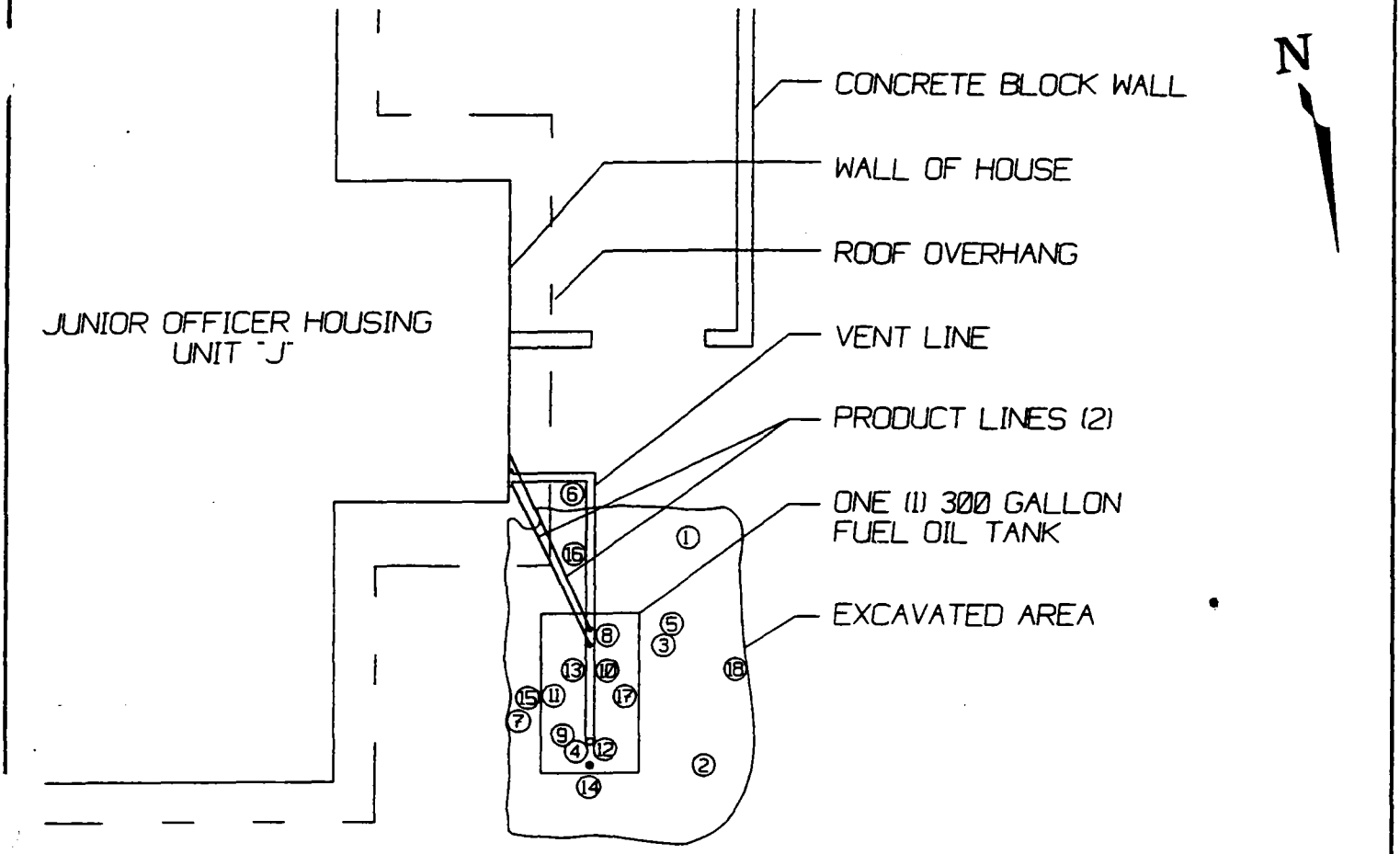
VERNON McKINNON — 7-12-95

(Type or Print)
Field Supervisor Name — Date

[signature] — 7-12-95

Field Supervisor Signature — Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.



SAMPLE #	HC	DEPTH	TIME (Collected/Read)	SAMPLE #	HC	DEPTH	TIME (Collected/Read)
1	1.1	1.5'	9:26/9:35	10	11.1	2.5'	10:19/10:22
2	1.4	4'	9:27/9:35	11	11.1	4'	10:37/10:40
3	0.7	1.5'	9:30/9:35	12	0.7	4'	10:37/10:40
4	2.6	0.5'	9:31/9:36	13	49.2	6.5'	10:56/11:03
5	0.4	1.5'	9:40/9:45	14	2.9	5.5'	10:56/11:05
6	10.5	1'	9:40/9:46	15	0.0	5'	10:57/11:05
7	6.4	1'	9:57/10:02	16	3.9	5'	10:57/11:06
8	16.5	1.5'	10:12/10:16	17	19.2	5.5'	10:57/11:07
9	1.1	1.5'	10:18/10:21	18	2.3	5'	10:58/11:07

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 580B PHOTOIONIZATION DETECTOR.

I▲S▲I

INNOVATIVE SERVICES INTERNATIONAL, INC.

SITE PLAN

JUNIOR OFFICER HOUSING UNIT "J"

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Geos inc.

ANALYTICAL LABORATORY & CORPORATE OFFICES (904) 786-8340
1057 NORTH ELLIS ROAD, SUITE 17 (800) 770-4367 (GEOS)
JACKSONVILLE, FLORIDA 32254-2249 FAX: (904) 786-7

GEOLOGICAL, ENVIRONMENTAL AND OCEANOGRAPHIC SCIENCES, INC.

ENVIRONMENTAL SPECIALTY LABORATORY (813) 626-0101
5909A BRECKENRIDGE PARKWAY FAX: (813) 626-0746
TAMPA, FLORIDA 33610-4237

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-239-01
LAB ID. 82223/E82101

Sample Description:
CECIL FIELD OFFICER HOUSING/ CECIL FIELD N.A.S.
TEMP. WELL @ JR. OFFICER UNIT "J"
GROUNDWATER

SAMPLE ID.: JO-J-6-95
COLLECTED: 06/26/95 14:34
RECEIVED: 06/26/95
COLLECTED BY: S. VOCKELL

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: TEMP_W TEMP. WELL ANALYSIS								
Hydrocarbons, Total IR	0.553		mg/L	418.1	0.200	06/29/95	06/29/95	AM
Lead, Total	0.153		mg/L	239.2	0.025	06/29/95	07/05/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	06/29/95	06/30/95	AT
Acenaphthylene	BDL		µg/L		10	06/29/95	06/30/95	AT
1-Methylnaphthalene	BDL		µg/L		10	06/29/95	06/30/95	AT
2-Methylnaphthalene	BDL		µg/L		10	06/29/95	06/30/95	AT
Acenaphthene	BDL		µg/L		10	06/29/95	06/30/95	AT
Fluorene	BDL		µg/L		10	06/29/95	06/30/95	AT
Phenanthrene	BDL		µg/L		10	06/29/95	06/30/95	AT
Anthracene	BDL		µg/L		10	06/29/95	06/30/95	AT
Fluoranthene	BDL		µg/L		10	06/29/95	06/30/95	AT
Pyrene	BDL		µg/L		10	06/29/95	06/30/95	AT
Benzo(a)anthracene	BDL		µg/L		10	06/29/95	06/30/95	AT
Chrysene	BDL		µg/L		10	06/29/95	06/30/95	AT
Benzo(b)fluoranthene	BDL		µg/L		10	06/29/95	06/30/95	AT
Benzo(k)fluoranthene	BDL		µg/L		10	06/29/95	06/30/95	AT
Benzo(a)pyrene	BDL		µg/L		10	06/29/95	06/30/95	AT
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	06/29/95	06/30/95	AT
Dibenzo(a,h)anthracene	BDL		µg/L		10	06/29/95	06/30/95	AT
Benzo(g,h,i)perylene	BDL		µg/L		10	06/29/95	06/30/95	AT
Surrogates								
Nitrobenzene-d5	99	Min: 35		Max: 114				
2-Fluorobiphenyl	81	Min: 43		Max: 116				
4-Terphenyl-d14	89	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	06/27/95	06/27/95	MD
Benzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Toluene	180		µg/L		1.0	06/27/95	06/27/95	MD
Ethyl benzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-239-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Xylene, Total	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Surrogates								
Bromobenzene	102	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromomethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Vinyl chloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Methylene chloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Trichlorofluoromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1-Dichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1-Dichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
total-1,2-Dichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloroform	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichlorethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,1-Trichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Carbon tetrachloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromodichloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichloropropane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
trans-1,3-Dichloropropene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Trichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Dibromochloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,2-Trichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
cis-1,3-Dichloropropene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
2-Chloroethylvinyl ether	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromoform	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Tetrachloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-239-01
LAB ID. 82223/E82101

Parameter	Result	Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,2-Dichlorobenzene	BDL	µg/L		1.0	06/27/95	06/27/95	MD
1,4-Dichlorobenzene	BDL	µg/L		1.0	06/27/95	06/27/95	MD
Surrogates							
Bromobenzene	101 Min: 70		Max: 130				

Odetta L. Hamilton for
Karen Foreman, Laboratory Director
Karen Foreman

Geos Inc.

CHAIN OF CU[illegible] RECORD

☐ 1057 N. ELLIS ROAD, SUITE 17, JACKSONVILLE, FL 32254-2249 • (904) 786-8340
☐ 5909A BRECKENRIDGE PARKWAY, TAMPA, FL 33610-4237 • (813) 626-0101

[redacted]

CLIENT NAME: ISI

ADDRESS: P.O. Box 050016
Cecil Field
Jacksonville, Fl 32216

PHONE: 778-2904 FAX:

CONTACT: R. Boardman

PROJECT NAME: Cecil Field Officer Housing

P. O. NUMBER / PROJECT NUMBER:

PROJECT LOCATION: Cecil Field

SAMPLED BY: S. Vockell

TURN AROUND TIME or RESULTS DUE BY:

☐ STANDARD ☐ VERBAL

☒ RUSH 72 hour Turnaround ☐ FAX

☐ OTHER ☐ HARD COPY

SPECIAL INSTRUCTIONS:

72 hour Turnaround

SAMPLE ID	SAMPLE DESCRIPTION	DATE	TIME	MATRIX	# OF CONT.	VOA 40 HCl	1 Glass 500 HNO3	1 Plastic 1000 NN	AG 1000 HCl	VOC's 601/602	Pb	EDB	TPH
						3	1	1	1				
SO-J-6-95	Groundwater J.O. Unit J	6/26	1434	GW	6	X	X	X	X				

* GW—Groundwater SW—Surface Water DW—Drinking Water WW—Wastewater SO—Solid/Soil SL—Sludge HW—Hazardous Waste A—Air

FIELD PARAMETERS / COMMENTS:

TRANS. NO.	TRANSFERS RELINQUISHED BY:	ACCEPTED BY:	DATE	TIME
1	Scott W. Vockell	K Bauriel	6/26/95	16 51
2				
3				

CONTAINER SPECIFICATIONS: ☐ YES ☐ NO SHIPPED VIA:

DISTRIBUTION: White—Client Copy Yellow—Lab Copy Pink—Sample Copy

APPENDIX B

MONITORING WELL INSTALLATION DETAIL

PROJECT: NAS Cecil Field BRAC UST Site		**LOG of WELL:** CEF-J-1S	**BORING NO.** CEF-J-1S
CLIENT: SOUTHDIVNAVFACENGCOM	**PROJECT NO:** 8571-03	**DATE STARTED:** 7-17-97	**COMPLETED:** 7-17-97
DRILLING SUBCONTRACTOR: Alliance		**SITE:** Quarter J (Housing)	**MONITOR INST.** PID
METHOD: 8.25" ID HSA	**WELL CASE DIAM.:** 2"	**SCREEN INT.:** 5-15 FT.	**SCREEN SLOT SIZE:** 0
TOC ELEVATION: FT. NGVD	**GROUND ELEV.:** FT. NGVD	**NORTHING:**	**EASTING:**
WELL DEVELOP. DATE: 8-7-97	**TOTAL DEPTH:** 18 FT. BLS	**DEPTH TO ▽** 7.00 FT. BLS	**LOGGED BY:** R Holloway

DEPTH FT.	SAMPLE INTERVAL	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SILTY SAND: Light gray, fine to very fine grain, subangular to subrounded.		SM	posthole	
			0	SILTY SAND: As above.			posthole	
5		NA	83	SILTY SAND: Dark gray, fine to very fine grain, subangular to subrounded.			post hole	
10		NA	64	SILTY SAND: Light brown, fine to very fine grain, slightly clayey, some iron oxide staining.			post hole	
15								
20								

APPENDIX C

GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- QTRS J -- REPORT NO. 9541

Lab Sample Number:	B7H0801410
Site	BRACGREY
Locator	CEF-J-1S
Collect Date:	07-AUG-97

	VALUE	QUAL	UNITS	DL
BRACGREY ANAYLTICAL PARAMETERS				
1,1,1-Trichloroethane	1	U	ug/L	1
1,1,2,2-Tetrachloroethane	1	U	ug/L	1
1,1,2-Trichloroethane	1	U	ug/L	1
1,1-Dichloroethane	1	U	ug/L	1
1,1-Dichloroethene	1	U	ug/L	1
1,2-Dichlorobenzene	1	U	ug/L	1
1,3-Dichlorobenzene	1	U	ug/L	1
1,4-Dichlorobenzene	1	U	ug/L	1
1,2-Dichloroethane	1	U	ug/L	1
1,2-Dichloropropane	1	U	ug/L	1
1-Methylnaphthalene	2	U	ug/L	2
2-Methylnaphthalene	2	U	ug/L	2
Acenaphthene	2	U	ug/L	2
Acenaphthylene	2	U	ug/L	2
Anthracene	2	U	ug/L	2
Benzene	1	U	ug/L	1
Benzo (a) anthracene	.1	U	ug/L	.1
Benzo (a) pyrene	.1	U	ug/L	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2
Benzo (k) fluoranthene	.15	U	ug/L	.15
Bromodichloromethane	1	U	ug/L	1
Bromoform	1	U	ug/L	1
Bromomethane	1	U	ug/L	1
Carbon tetrachloride	1	U	ug/L	1
Chlorobenzene	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chloroform	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chrysene	.1	U	ug/L	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2
Dibromochloromethane	1	U	ug/L	1
Dichlorodifluoromethane	1	U	ug/L	1
Ethylbenzene	1	U	ug/L	1
Ethylene dibromide	.02	U	ug/L	.02
Fluoranthene	.2	U	ug/L	.2
Fluorene	2	U	ug/L	2
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1
Lead	5	U	ug/L	5
Methyl tert-butyl ether	1	U	ug/L	1
Methylene chloride	5	U	ug/L	5
Naphthalene	2	U	ug/L	2
Phenanthrene	2	U	ug/L	2
Pyrene	.2	U	ug/L	.2
Tetrachloroethene	1	U	ug/L	1
Toluene	1	U	ug/L	1
Total petroleum hydrocarbons	.5	U	mg/l	.5
Trichloroethene	1	U	ug/L	1
Trichlorofluoromethane	1	U	ug/L	1
Vinyl chloride	1	U	ug/L	1

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- QTRS J -- REPORT NO. 9541

Lab Sample Number:	B7H0801410
Site	BRACGREY
Locator	CEF-J-1S
Collect Date:	07-AUG-97

	VALUE	QUAL	UNITS	DL
Xylenes (total)	1	U	ug/L	1
cis-1,3-Dichloropropene	1	U	ug/L	1
trans-1,2-Dichloroethene	1	U	ug/L	1
trans-1,3-Dichloropropene	1	U	ug/L	1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

QUARTERS H, TANK QUARTERS H

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

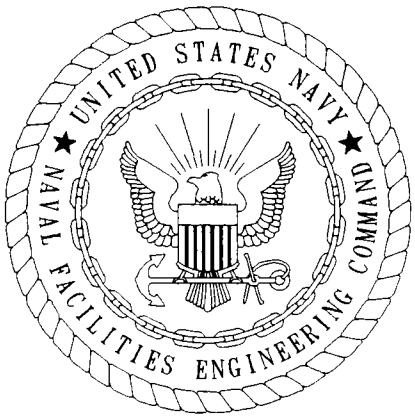
ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Confirmatory Sampling Report
Quarters H, Tank Quarters H
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF FIGURES

Confirmatory Sampling Report
Quarters H, Tank Quarters H
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ISI	Innovative Services International, Inc.
OVA	organic vapor analyzer
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for the Quarters H tank site, Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

The Quarters H tank was an underground storage tank (UST) located on the east side of Quarters H, a house for junior officers (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). The Quarters H tank was removed by Innovative Services International, Inc. (ISI), on June 1, 1995. A closure assessment report (Appendix A) was prepared for the Quarters H tank and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that excessively contaminated soil was present at the site but did not indicate whether or not the excessively contaminated soil was removed. Therefore, to evaluate the current soil conditions, the petroleum subcommittee (selected by the Naval Air Station Cecil Field partnering team) identified locations for soil screening. A contamination assessment plan for the Tank Quarters H site was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Quarters H was initiated in June 1997 and included

- the advancement of one soil boring to the water table.

Soil samples were collected at depth intervals of 1 foot below land surface and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA). The soil boring location is presented on Figure 2.

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil was not detected in soil samples collected from the unsaturated zone during the confirmatory sampling. The soil OVA data are summarized in Table 1 and presented in Figure 2.

Groundwater analytical results from the closure assessment are summarized in Table 2.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling at the Quarters H tank site does not indicate the presence of contaminated soil. During the closure assessment, lead was detected in groundwater at concentrations exceeding cleanup target levels; however, lead is not a component of fuel oil, and elevated levels may be

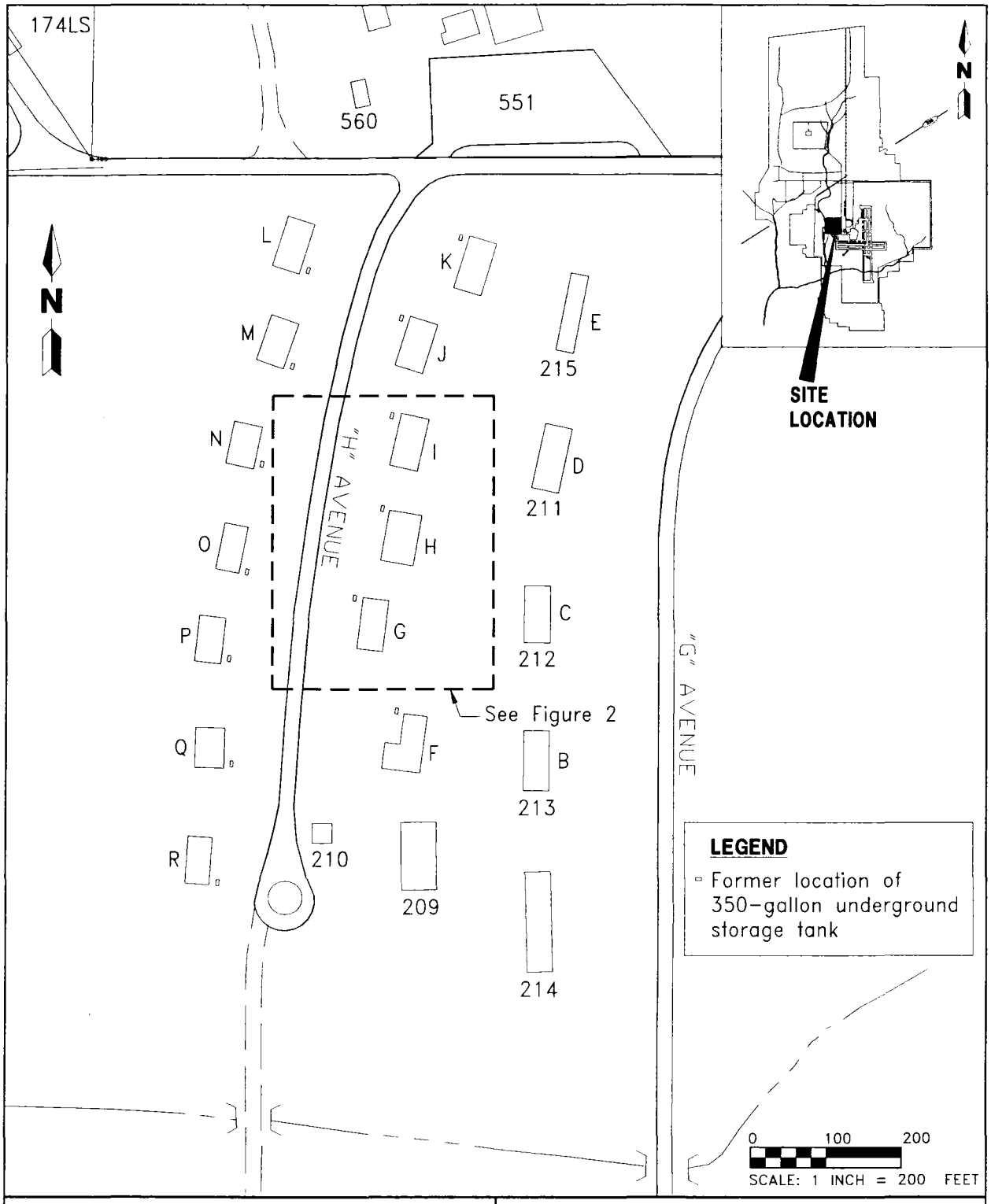

FIGURE 1
TANK QUARTERS H
BASE FAMILY HOUSING

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CONFIRMATORY SAMPLING REPORT
QUARTERS H, TANK QUARTERS H

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-QtrH.CSR
SAS.01.98

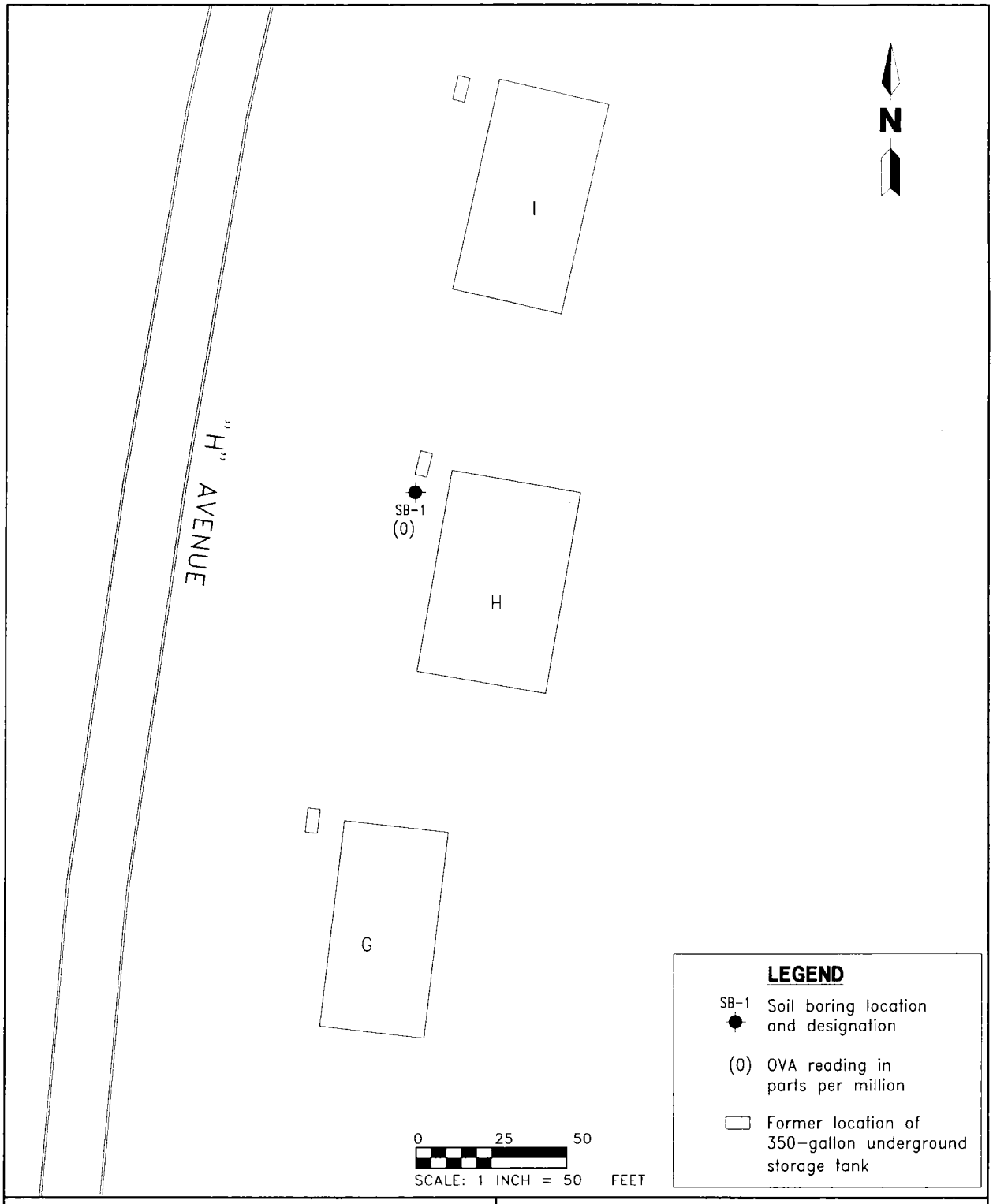


FIGURE 2
SOIL BORING LOCATION

K:\02549\02549-03\CAR\02549549.DWG, NP-MAW 01/19/98 13:34:10, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
QUARTERS H, TANK QUARTERS H

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Soil Screening Results

Confirmatory Sampling Report
Quarters H, Tank Quarters H
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB-1	1	0	–	0
	3	0	–	0
	4.5 (wet)	0	–	0

Notes: All soil samples were collected on June 16, 1997.
Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
-- = filtered readings were not collected.
wet = soil sample was completely saturated when analyzed.

Table 2
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building H, Tank Quarters H
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	ISI Closure Assessment Temporary Well	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)		
No compounds detected.		
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)		
No compounds detected.		
Total Recoverable Petroleum Hydrocarbons (TRPH) (USEPA Method 418.1) (mg/ℓ)		
TRPH	0.31	5
Lead (USEPA Method 239.2) (µg/ℓ)		
Lead	34	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected on June 26, 1995, by ISI during the closure assessment.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
mg/ℓ = milligrams per liter.

the result of turbidity in the sample. No other contaminants were detected above regulatory standards specified in Chapter 62-770, Florida Administrative Code in the groundwater sample collected during the closure assessment (ISI, 1995). Therefore, no further action is recommended for the Quarters H tank site.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(4)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____
(Filled in by DER)

Closure Assessment Form

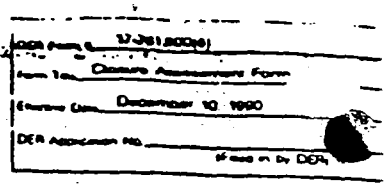
Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: July 10, 1995
2. DER Facility ID Number: N/A
3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Officer Housing Unit "H"
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (____) _____
9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or XB. Underground
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): (Circle one) A. Replaced XB. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One (1)
14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☐	☒		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☐	☒	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____



12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample location and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Metho 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitte to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered pro gram office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner — Date

Signature of Person Performing Assessment — Date: 7/11/95

Professional Geologist
Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene — 1 ug/l
   b. Total VOA — 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) — 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(5)
Form Title Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date December 10, 1990
DER Application No. (Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Telephone: (____) ____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing Unit "H"
4. Owner Name: U.S. Navy Telephone: (____) ____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time ____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown

Date Work Initiated: 6/1/95 9. Date Work Completed: 6/2/95

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these instututions.

Underground Pollutant Tank Removal Checklist

Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☒

Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
7825 Baymeadows Way, Suite B 200
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803-3767
407-894-7555

Southwest District
4520 Oak Fair Blvd
Tampa, Florida 33610-7347
813-[illegible]

South District
2269 Bay St
Fort Myers, Florida 33901-2896

Southeast District
1900 S Congress Ave., Suite A
West Palm Beach, Florida 33406

DLH Form #: 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Roland Boardman — PCC 054952

(Type or Print)
Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PSSSC Number

[signature] — 7-12-95

Certified Tank Contractor Signature — Date

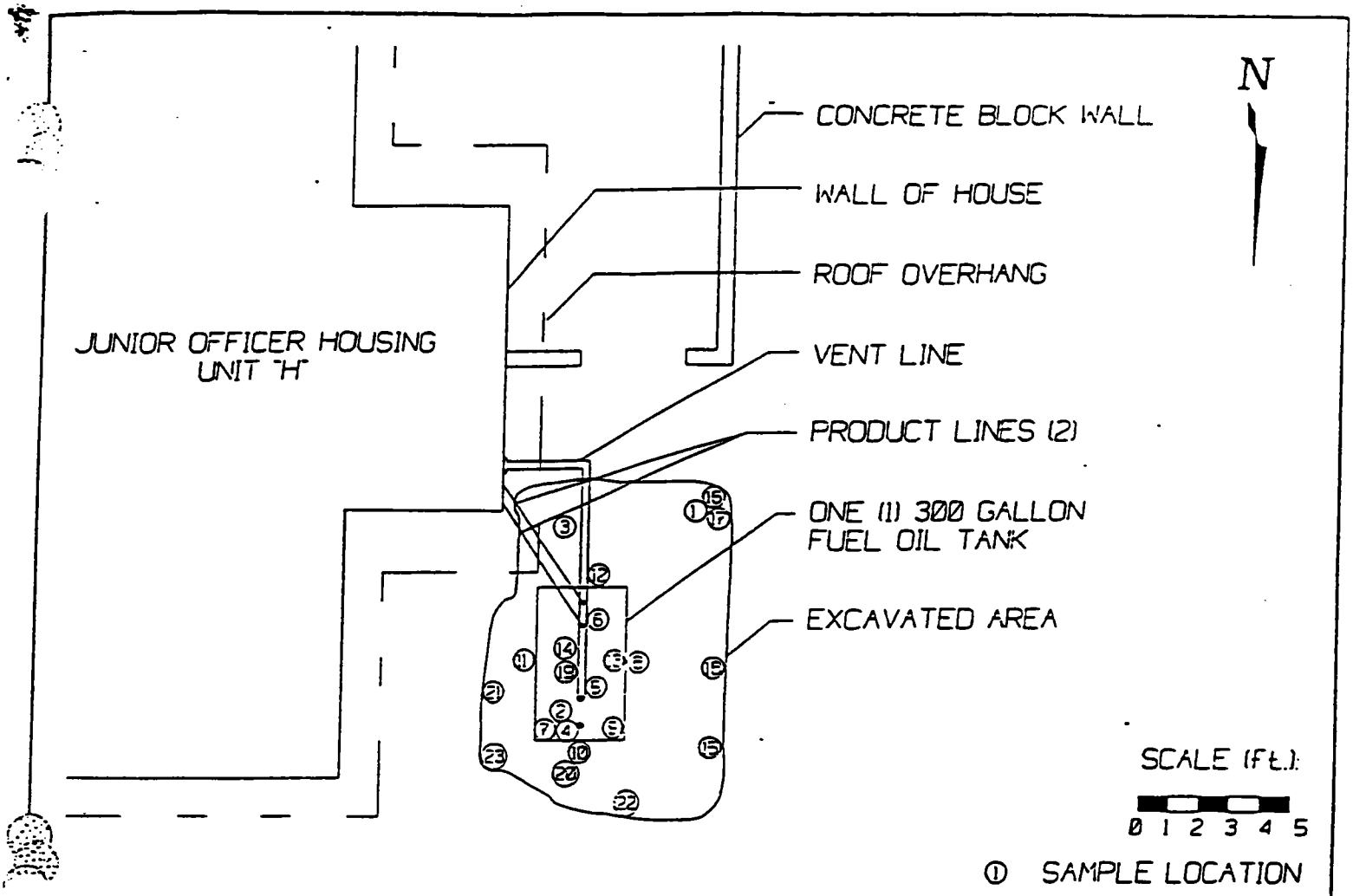
VERNON McGINNON. — 7-12-95

(Type or Print)
Field Supervisor Name — Date

Vernon McGinnon — 7-12-95

Field Supervisor Signature — Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.



SAMPLE #	HC	DEPTH	TIME (Collected/Read)	SAMPLE #	HC	DEPTH	TIME (Collected/Read)
1	00	1'	9:22/9:33	13	88.6	5'	10:47/10:56
2	1.1	0.5'	9:23/9:34	14	34.7	5.5'	10:47/10:57
3	1.1	1'	9:26/9:34	15	12.1	5'	10:48/10:57
4	1.7	0.5'	9:26/9:34	16	0.4	5'	10:49/10:58
5	0.1	1.5'	9:41/9:45	17	2.9	6'	11:33/11:38
6	00	1.5'	9:41/9:45	18	37.0	6'	11:33/11:39
7	2.6	1.5'	9:42/9:46	19	71.9	6'	11:34/11:40
8	83.6	5'	9:47/9:50	20	56.8	6'	11:50/11:55
9	6.1	2'	9:48/9:51	21	2.0	6'	11:50/11:56
10	1.1	5'	10:45/10:55	22	0.1	6'	12:00/12:05
11	4.5	5'	10:46/10:55	23	0.0	6'	12:01/12:06
12	2.6	5'	10:46/10:56				

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 580B PHOTOIONIZATION DETECTOR.

I▲S▲I

INNOVATIVE
SERVICES
INTERNATIONAL, INC.

SITE PLAN

JUNIOR OFFICER HOUSING UNIT "H"

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

Geos Inc.

ANALYTICAL LABORATORY & CORPORATE OFFICES (904) 786-8340
1057 NORTH ELLIS ROAD, SUITE 17 (800) 770-4367 (GF
JACKSONVILLE, FLORIDA 32254-2249 FAX: (904) 786-

GEOLOGICAL, ENVIRONMENTAL AND OCEANOGRAPHIC SCIENCES, INC.

ENVIRONMENTAL SPECIALTY LABORATORY (813) 626-0101
5909A BRECKENRIDGE PARKWAY FAX: (813) 626-0746
TAMPA, FLORIDA 33610-4237

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-237-01
LAB ID. 82223/E821C1

Sample Description:
CECIL FIELD OFFICER HOUSING/ CECIL FIELD N.A.S.
TEMP. WELL @ JR. OFFICER UNIT "H"
GROUNDWATER

SAMPLE ID.: JO-H-6-95
COLLECTED: 06/26/95 14:07
RECEIVED: 06/26/95
COLLECTED BY: S. VOCKELL

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: TEMP_W TEMP. WELL ANALYSIS								
Hydrocarbons, Total IR	0.310		mg/L	418.1	0.200	06/29/95	06/29/95	AM
Lead, Total	0.034		mg/L	239.2	0.005	06/29/95	07/05/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	06/28/95	06/29/95	AT
Acenaphthylene	BDL		µg/L		10	06/28/95	06/29/95	AT
1-Methylnaphthalene	BDL		µg/L		10	06/28/95	06/29/95	AT
2-Methylnaphthalene	BDL		µg/L		10	06/28/95	06/29/95	AT
Acenaphthene	BDL		µg/L		10	06/28/95	06/29/95	AT
Fluorene	BDL		µg/L		10	06/28/95	06/29/95	AT
Phenanthrene	BDL		µg/L		10	06/28/95	06/29/95	AT
Anthracene	BDL		µg/L		10	06/28/95	06/29/95	AT
Fluoranthene	BDL		µg/L		10	06/28/95	06/29/95	AT
Pyrene	BDL		µg/L		10	06/28/95	06/29/95	AT
Benzo(a)anthracene	BDL		µg/L		10	06/28/95	06/29/95	AT
Chrysene	BDL		µg/L		10	06/28/95	06/29/95	AT
Benzo(b)fluoranthene	BDL		µg/L		10	06/28/95	06/29/95	AT
Benzo(k)fluoranthene	BDL		µg/L		10	06/28/95	06/29/95	AT
Benzo(a)pyrene	BDL		µg/L		10	06/28/95	06/29/95	AT
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	06/28/95	06/29/95	AT
Dibenzo(a,h)anthracene	BDL		µg/L		10	06/28/95	06/29/95	AT
Benzo(g,h,i)perylene	BDL		µg/L		10	06/28/95	06/29/95	AT
Surrogates								
Nitrobenzene-d5	80	Min: 35		Max: 114				
2-Fluorobiphenyl	73	Min: 43		Max: 116				
4-Terphenyl-d14	74	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	06/27/95	06/27/95	MD
Benzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Toluene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Ethyl benzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-237-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Xylene, Total	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Surrogates								
Bromobenzene	105	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromomethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Vinyl chloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Methylene chloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Trichlorofluoromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1-Dichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1-Dichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
total-1,2-Dichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chloroform	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichlorethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,1-Trichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Carbon tetrachloride	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromodichloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,2-Dichloropropane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
trans-1,3-Dichloropropene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Trichloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Dibromochloromethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,2-Trichloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
cis-1,3-Dichloropropene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
2-Chloroethylvinyl ether	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Bromoform	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Tetrachloroethene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/27/95	06/27/95	MD

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

6 Jul 1995
Report J5-06-237-01
LAB ID. 82223/E82101

Parameter	Result	Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,2-Dichlorobenzene	BDL	µg/L		1.0	06/27/95	06/27/95	MD
1,4-Dichlorobenzene	BDL	µg/L		1.0	06/27/95	06/27/95	MD
Surrogates							
Bromobenzene	104 Min: 70		Max: 130				

Gordon L. Hamilton for
Karen Foreman, Laboratory Director
Karen Foreman

CHAIN OF CU[illegible] RECORD

Geos Inc.

☐ 1057 N. ELLIS ROAD, SUITE 17, JACKSONVILLE, FL 32254-2249 • (904) 786-8340
☐ 5909A BRECKENRIDGE PARKWAY, TAMPA, FL 33610-4237 • (813) 626-0101

[redacted]

CLIENT NAME: ISI	PROJECT NAME: Cecil Field Officer Housing
ADDRESS: P.O. Box 050016 Cecil Field Jacksonville, Fl 32215	P. O. NUMBER / PROJECT NUMBER
PHONE: 778-2904 FAX:	PROJECT LOCATION: Cecil Field
CONTACT: R. Boardman	SAMPLED BY: S. Vockell
TURN AROUND TIME or RESULTS DUE BY: ☐ STANDARD ☐ VERBAL ☒ RUSH 72 hr ☐ FAX ☐ OTHER ☐ HARD COPY	SPECIAL INSTRUCTIONS: 72 hour Turnaround

SAMPLE ID		DATE	TIME	MATRIX	# CONT.	601/602	Pb	610	TPH	40 glass HCl	500 plastic HNO3	1000 RC H2SO4	1000 AG HCl				
						3	1	1	1								
JO-H-6-96	Groundwater J.O. Unit H	6/26	1407	GW	6	X	X	X	X								

* GW—Groundwater SW—Surface Water DW—Drinking Water WW—Wastewater SO—Solid/Soil SL—Sludge HW—Hazardous Waste A—Air

FIELD PARAMETERS / COMMENTS:

TRANS. NO.	TRANSFERS RELINQUISHED BY:	ACCEPTED BY:	DATE	TIME
1	Scott Wickell	K Bauch	6/26/96	1657
2				
3				
4				

CONTAINER

DISTRIBUTION: White—Client Copy Yel[illegible]ab Copy Pink—Sample Copy

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 402, TANK 402

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

TABLE OF CONTENTS

Confirmatory Sampling Report
Building 402, Tank 402
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF FIGURES

Confirmatory Sampling Report
Building 402, Tank 402
Naval Air Station Cecil Field
Jacksonville, Florida

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ISI	Innovative Services International, Inc.
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for Tank 402 at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

Tank 402 was an underground storage tank (UST) located on the south side of Building 402, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). Tank 402 was removed by Innovative Services International, Inc. (ISI), on January 25, 1995. A closure assessment report (Appendix A) was prepared for Tank 402 and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that groundwater analytical results (benzene at 10.3 micrograms per liter) were above State target levels. To assess the current groundwater quality at Tank 402, a contamination assessment plan was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Tank 402 was initiated in July 1997 and included

- the installation of one shallow groundwater monitoring well, and
- collection and analysis of one groundwater sample.

One monitoring well, CEF-402-1S, was installed at the former UST location to a depth of 13 feet below land surface. One groundwater sample was collected on August 6, 1997, and analyzed for the Kerosene Analytical Group parameters. A general site plan indicating the location of monitoring well CEF-402-1S is presented on Figure 2. The monitoring well installation detail is included in Appendix B.

3.0 SCREENING AND ANALYTICAL RESULTS

No contaminants were detected in the groundwater sample collected from well CEF-402-1S. Groundwater analytical results from the closure assessment and the confirmatory sampling event are summarized in Table 1. The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

No contaminants were detected in the groundwater sample collected from monitoring well CEF-402-1S. Therefore, no further action is recommended for the Tank 402 site.

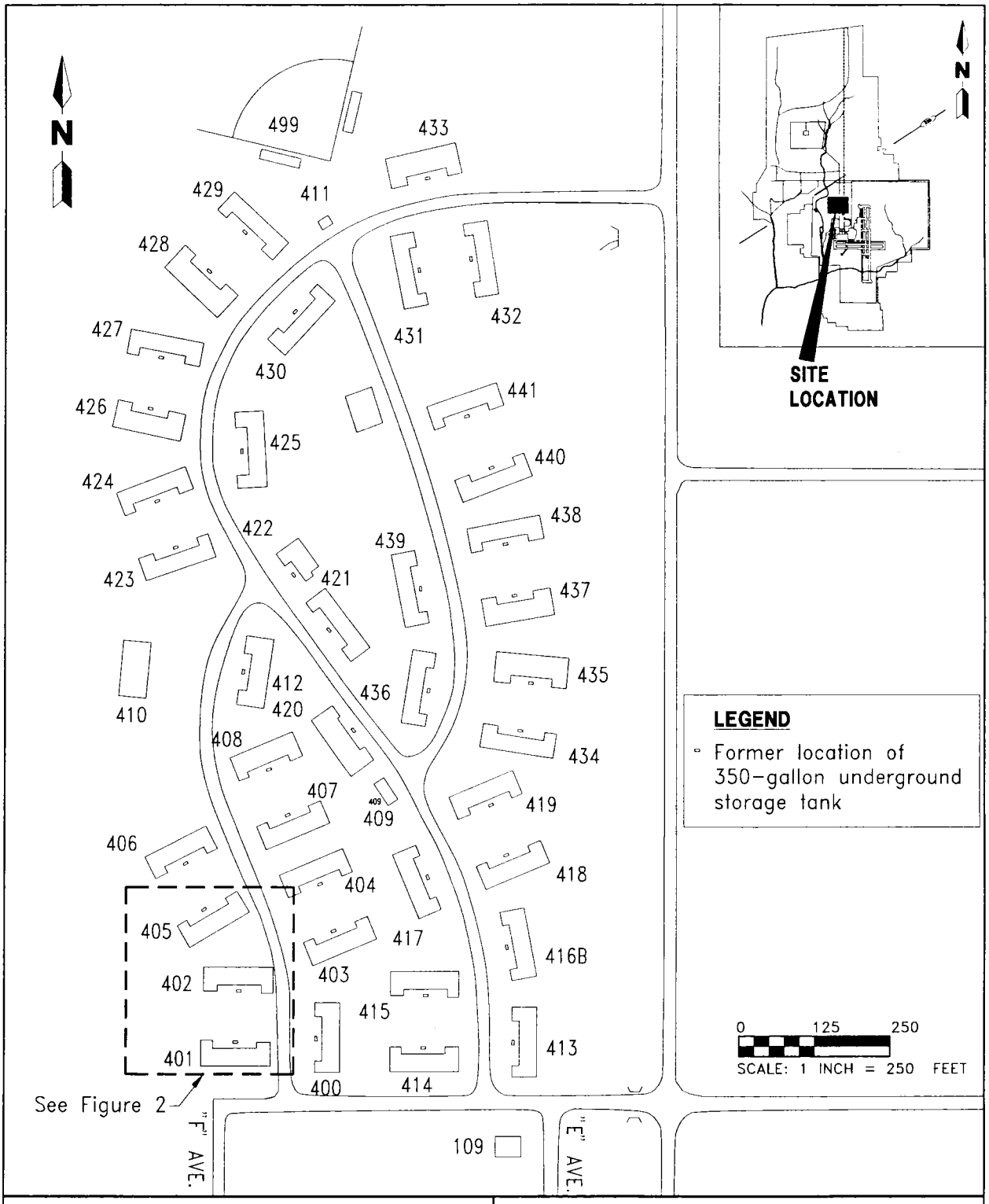


FIGURE 1
TANK 402
BASE FAMILY HOUSING

K:\02549\02549-03\CAR\02549500.DWG, -NP 01/06/98 14:21:51, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
BUILDING 402, TANK 402

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T402.CSR
SAS.01.98

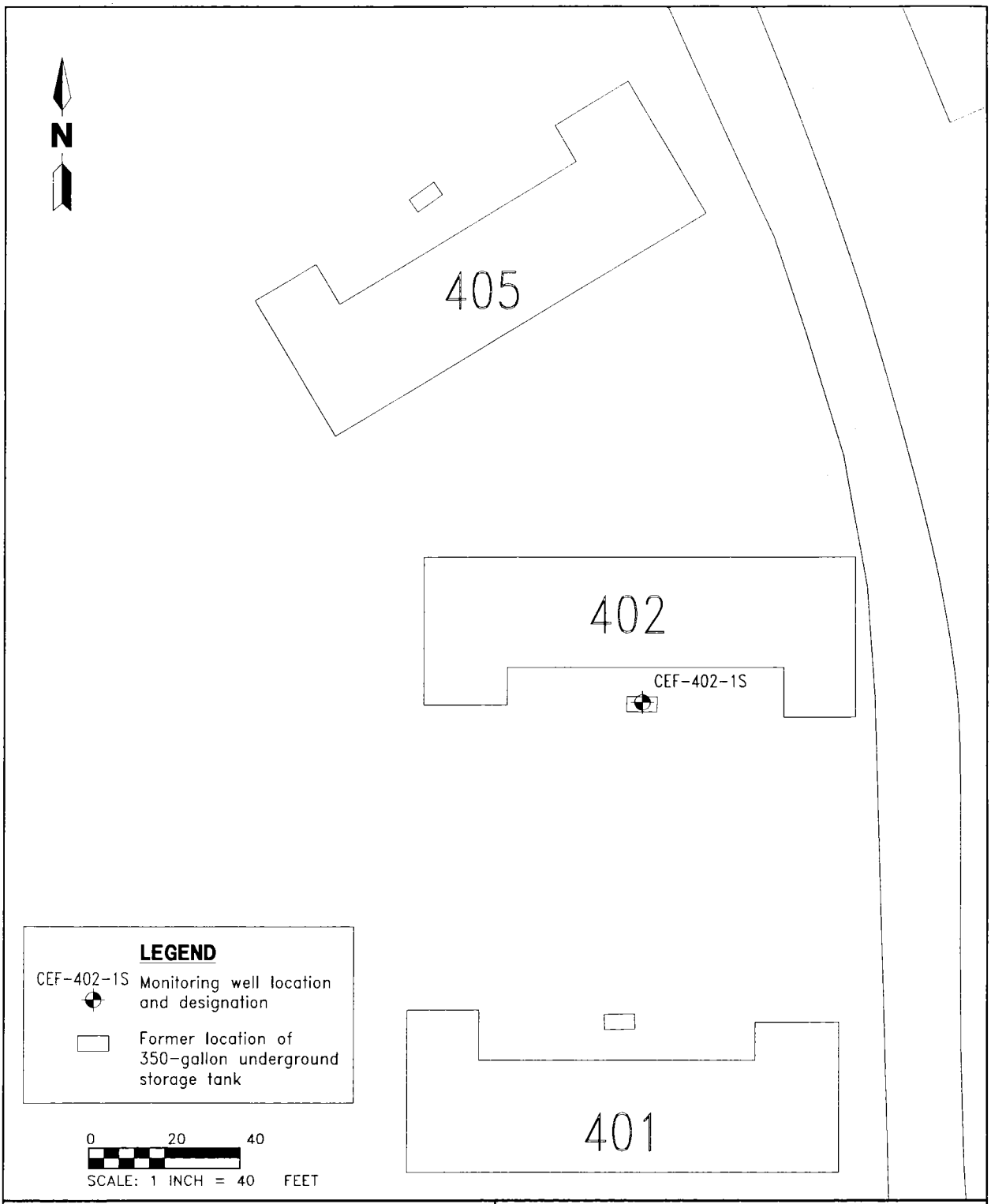


FIGURE 2
MONITORING WELL LOCATION

K:\02549\02549-03\CAR\02549501.DWG, -NP 01/06/98 14:38:37, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
BUILDING 402, TANK 402

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T402.CSR
SAS.01.98

Table 1
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building 402, Tank 402
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells		Groundwater Cleanup Target Levels[1]
	ISI Temporary Well	CEF-402-1S	
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Benzene	10.3	ND	1
Xylenes	3.5	ND	20
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)			
No compounds detected.			
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)			
No compounds detected.			
Lead (USEPA Method 239.2) (µg/ℓ)			
Lead	32	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on February 6, 1995, and by ABB Environmental Services, Inc., on August 6, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
ND = compound not detected.
FL-PRO = Florida-Petroleum Residual Organic.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(6)
Form Title Closure Assessment Form
Effective Date December 10, 1990
DER Application No. _____ (Filled in by DER)

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: January 25, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Cecil Field Housing: Unit 402
5. Facility Owner: U.S. Navy
6. Facility Address: N.A.S. Cecil Field
7. Mailing Address: N.A.S. Cecil Field
8. Telephone Number: (____) _____ 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or (B. Underground)
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): **(Circle one)** A. Replaced (B. Removed) C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One 14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☐	☒		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☐	☒	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Northeast District
7825 Baymeadows Way, Suite B 200
Jacksonville, Florida 32207

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803 3767

Southwest District
4520 Oak Fair Blvd
Tampa, Florida 33610 7347

South District
2269 Bay St
Fort Myers, Florida 33901 2896

Southeast District
1900 S. Congress Ave. Suite A
West Palm Beach, Florida 33406

DER Form #	17-761.900(b)
Form Title	Closure Assessment Form
Effective Date	December 10, 1990
DER Application No.	(Filled in by DER)

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner — Date

Signature of Person Performing Assessment — Date: 3/3/95

Professional Geologist
Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene — 1 ug/l
   b. Total VOA — 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) — 50 ug/l

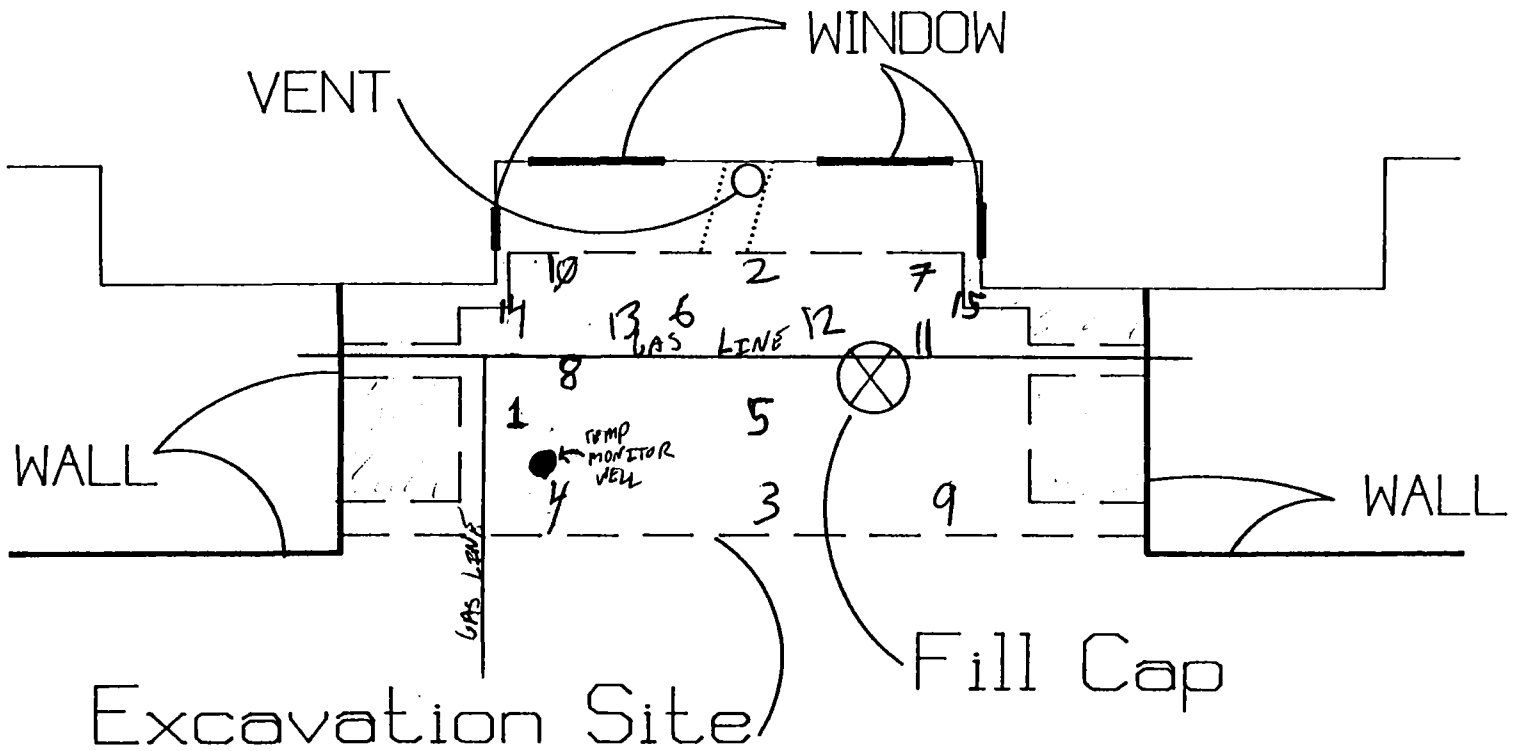
2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Closure Report for Cecil Field Housing
Building 402

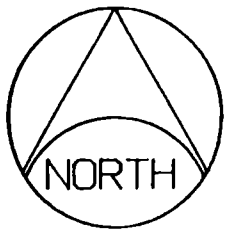
OVA RESULTS**

Sample #	W/O Carbon	W/Carbon	Adjusted	Depth (FT)
1	0	0	0	1.00
2	0	0	0	1.00
3	0	0	0	1.00
4	4	4	0	2.00
5	2	2	0	2.00
6	28	20	8	4.00
7	0	0	0	1.00
8	0	0	0	2.50
9	22	20	2	2.50
10	0	0	0	1.00
11	10	10	0	4.00
12	30	18	12	3.5 - 4.0
13	32	15	17	4.00
14	0	0	0	1.00
15	0	0	0	1.00

**= Results are in ppm


WINDOW
VENT
10
2
7
14
13
6
GAS LINE
12
15
11
8
1
5
TEMP MONITOR WELL
4
3
9
WALL
WALL
GAS LINE
Excavation Site
Fill Cap

Bldg. 402


NORTH

Geological Environmental and Oceanographic Sciences, Inc.

1627 East 8th Street
Jacksonville, Florida 32206-5407
(904) 354-6755
(800) 486-6755
(904) 354-3799 Fax

Water
Soil
Air
Analysis and Consulting

Geos Inc.

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

Page 1
27 Feb 1995
Report J5-02-042-01
LAB ID. 82223/E82101

Sample Description:
ISI/CECIL FIELD
TEMP. MONITOR WELLS
GROUNDWATER

SAMPLE ID.: BLDG. 402
COLLECTED: 02/06/95 11:45
RECEIVED: 02/06/95
COLLECTED BY: N. ROGERS/R. RUSHING

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: KERO KEROSENE GROUP								
Hydrocarbons, Total IR	<0.200		mg/L	418.1	0.200	02/07/95	02/07/95	AM
Lead, Total	0.032		mg/L	239.2	0.005	02/07/95	02/09/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
Acenaphthylene	BDL		µg/L		10	02/08/95	02/08/95	MD
1-Methylnaphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
2-Methylnaphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
Acenaphthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Fluorene	BDL		µg/L		10	02/08/95	02/08/95	MD
Phenanthrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(a)anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Chrysene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(b)fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(k)fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(a)pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Dibenzo(a,h)anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(g,h,i)perylene	BDL		µg/L		10	02/08/95	02/08/95	MD
Surrogates								
Nitrobenzene-d5	72	Min: 35		Max: 114				
2-Fluorobiphenyl	87	Min: 43		Max: 116				
4-Terphenyl-d14	94	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		ug/L		5.0	02/17/95	02/17/95	XX
Benzene	10.3		ug/L		1.0	02/17/95	02/17/95	XX

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

Page 2
27 Feb 1995
Report J5-02-042-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Toluene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Ethyl benzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Xylene, Total	3.5		ug/L		1.0	02/17/95	02/17/95	XX
Chlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,4-Dichlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,3-Dichlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,2-Dichlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Surrogates								
Bromobenzene	107	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Chloromethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Bromomethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Vinyl chloride	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Chloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Methylene chloride	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Trichlorofluoromethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,1-Dichloroethene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,1-Dichloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
total-1,2-Dichloroethene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Chloroform	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,2-Dichloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,1,1-Trichloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Carbon tetrachloride	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Bromodichloromethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,2-Dichloropropane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
trans-1,3-Dichloropropene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Trichloroethene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Dibromochloromethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,1,2-Trichloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
cis-1,3-Dichloropropene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
2-Chloroethylvinyl ether	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Bromoform	BDL		ug/L		1.0	02/17/95	02/17/95	XX

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

Page 3
27 Feb 1995
Report J5-02-042-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Tetrachloroethene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
Chlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,3-Dichlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,2-Dichlorobenzene	BDL		ug/L		1.0	02/17/95	02/17/95	XX
1,4-Dichlorobenzene	2.6		ug/L		1.0	02/17/95	02/17/95	XX
Surrogates								
Bromobenzene	107	Min: 70		Max: 130				

Karen T. Foreman

Karen Foreman, Laboratory Director

Lab Results UNIT 400
VS.
Florida DEP Ground Water Guidance Concentration

Bldg #	Test Done		Result	Guidance [ ]
400	Lead, Total		0.033 ppm *	0.015 ppm
401	Hydrocarbons, Toral IR		0.661 ppm	
	Lead, Total		0.040 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	2.0 ppb	
		Xylene, Total	2.8 ppb	
		Total BETX	4.8 ppb	50 ppb
402	Lead, Total		0.032 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	10.3 ppb	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.5 ppb	
		Total BETX	13.8 ppb	50 ppb
	Volatile Halocarbons	1, 4 - Dichlorobenzene	2.6 ppb	75 ppb
403	Lead, Total		0.071 ppm *	0.015 ppm
405	Lead, Total		0.009 ppm *	0.015 ppm
	Volatile Aromatics	Benezene	1.4 ppb	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.7 ppb	
		Total BETX		50 ppb
		1, 4 - Dichlorobenzene	3.0 ppb	75 ppb
	Volatile Halocarbons	1, 2 - Dichloroethane	3.4 ppb	3.0 ppb
		1, 4 - Dichlorobenzene	2.3 ppb	75 ppb
412	Lead, Total		0.015 ppm *	0.015 ppm
413	Lead, Total		0.007 ppm *	0.015 ppm
414	Lead, Total		0.048 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.7 ppb	
		Total BETX	3.7 ppb	50 ppb
415	Lead Total		0.063 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	2.6 ppb	
		Toluene	BDL	
		Xylene, Total	9.1 ppb	
		Total BETX	11.7 ppb	50 ppb
	Volatile Halocarbons	Chloroform	6.0 ppb	6.0 ppb
		Carbon Tetrachloride	9.0 ppb	3.0 ppb
417	Hydrocarbons, Total IR		1.75 ppm	
	Lead, Total		0.059 ppm *	0.015 ppm

*** Test results for lead probably represents background levels, and not a contaminant.**

APPENDIX B

MONITORING WELL INSTALLATION DETAIL

PROJECT: NAS Cecil Field BRAC UST Site		**LOG of WELL:** CEF-402-1S	**BORING NO.** CEF-402-1S
CLIENT: SOUTHDIVNAVFACENGCOM	**PROJECT NO:** 8571-03	**DATE STARTED:** 7-16-97	**COMPLETED:** 7-16-97
DRILLING SUBCONTRACTOR: Alliance		**SITE:** Quarters 402 (Housing)	**MONITOR INST.** PID
METHOD: 8.25 ID HSA	**WELL CASE DIAM.:** 2"	**SCREEN INT.:** 3-13 FT.	**SCREEN SLOT SIZE:** 0
TOC ELEVATION: FT. NGVD	**GROUND ELEV.:** FT. NGVD	**NORTHING:**	**EASTING:**
WELL DEVELOP. DATE: 7-23-97	**TOTAL DEPTH:** 14 FT. BLS	**DEPTH TO ▽** 2.91 FT. BLS	**LOGGED BY:** J tarr

DEPTH FT.	SAMPLE INTERVAL	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SILTY SAND: Dark gray, fine grain with silt, organics.		SM	posthole	
			200	CLAYEY SAND: Light brown, 40% clay, 60% sand.		SC	posthole	
5		50%	100	SILTY SAND: Light brown, fine grain, poorly graded.		SM	1,1,2,5	
10		0%	50	SILTY SAND: No recovery, but appears to be light brown, fine grain silty sand, poorly graded, wet, no petroleum odor.			3,3,5,5	
15								
20								

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 402 -- REPORT NO. 9547

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-402-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
BRACGREY ANAYLTICAL PARAMETERS				
1,1,1-Trichloroethane	1	U	ug/L	1
1,1,2,2-Tetrachloroethane	1	U	ug/L	1
1,1,2-Trichloroethane	1	U	ug/L	1
1,1-Dichloroethane	1	U	ug/L	1
1,1-Dichloroethene	1	U	ug/L	1
1,2-Dichlorobenzene	1	U	ug/L	1
1,3-Dichlorobenzene	1	U	ug/L	1
1,4-Dichlorobenzene	1	U	ug/L	1
1,2-Dichloroethane	1	U	ug/L	1
1,2-Dichloropropane	1	U	ug/L	1
1-Methylnaphthalene	2	U	ug/L	2
2-Methylnaphthalene	2	U	ug/L	2
Acenaphthene	2	U	ug/L	2
Acenaphthylene	2	U	ug/L	2
Anthracene	2	U	ug/L	2
Benzene	1	U	ug/L	1
Benzo (a) anthracene	.1	U	ug/L	.1
Benzo (a) pyrene	.1	U	ug/L	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2
Benzo (k) fluoranthene	.15	U	ug/L	.15
Bromodichloromethane	1	U	ug/L	1
Bromoform	1	U	ug/L	1
Bromomethane	1	U	ug/L	1
Carbon tetrachloride	1	U	ug/L	1
Chlorobenzene	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chloroform	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chrysene	.1	U	ug/L	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2
Dibromochloromethane	1	U	ug/L	1
Dichlorodifluoromethane	1	U	ug/L	1
Ethylbenzene	1	U	ug/L	1
Ethylene dibromide	.02	U	ug/L	.02
Fluoranthene	.2	U	ug/L	.2
Fluorene	2	U	ug/L	2
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1
Lead	5	U	ug/L	5
Methyl tert-butyl ether	1	U	ug/L	1
Methylene chloride	5	U	ug/L	5
Naphthalene	2	U	ug/L	2
Phenanthrene	2	U	ug/L	2
Pyrene	.2	U	ug/L	.2
Tetrachloroethene	1	U	ug/L	1
Toluene	1	U	ug/L	1
Total petroleum hydrocarbons	.5	U	mg/l	.5
Trichloroethene	1	U	ug/L	1
Trichlorofluoromethane	1	U	ug/L	1
Vinyl chloride	1	U	ug/L	1

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 402 -- REPORT NO. 9547

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-402-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
Xylenes (total)	1	U	ug/L	1
cis-1,3-Dichloropropene	1	U	ug/L	1
trans-1,2-Dichloroethene	1	U	ug/L	1
trans-1,3-Dichloropropene	1	U	ug/L	1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 405, TANK 405

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

TABLE OF CONTENTS

Confirmatory Sampling Report
Building 405, Tank 405
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF FIGURES

Confirmatory Sampling Report
Building 405, Tank 405
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
FAC	Florida Administrative Code
ISI	Innovative Services International, Inc.
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for Tank 405 at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

Tank 405 was an underground storage tank (UST) located on the north side of Building 405, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). Tank 405 was removed by Innovative Services International, Inc. (ISI), on January 30, 1995. A closure assessment report (Appendix A) was prepared for Tank 405 and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that groundwater contamination (benzene at 1.4 micrograms per liter) was present and exceeded State target levels. To assess the current groundwater quality at Tank 405, a contamination assessment plan was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Tank 405 was initiated in July 1997 and included

- the installation of one shallow groundwater monitoring well, and
- collection and analysis of one groundwater sample.

One monitoring well, CEF-405-1S, was installed at the former UST location to a depth of 13 feet below land surface. One groundwater sample was collected on August 6, 1997, and analyzed for the Kerosene Analytical Group parameters. A general site plan indicating the location of monitoring well CEF-405-1S is presented on Figure 2. The monitoring well installation detail is included in Appendix B.

3.0 SCREENING AND ANALYTICAL RESULTS

Xylene and total recoverable petroleum hydrocarbons were the only parameters detected in the groundwater sample collected from well CEF-405-1S. However, contaminant concentrations in groundwater were below the regulatory standards for Class G-II groundwater as specified in Chapter 62-770 of the Florida Administrative Code (FAC) (Table 1). The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

No contaminants were detected above regulatory standards specified in Chapter 62-770, FAC, in the groundwater sample collected from monitoring well CEF-405-1S. Therefore, no further action is recommended for the Tank 405 site.

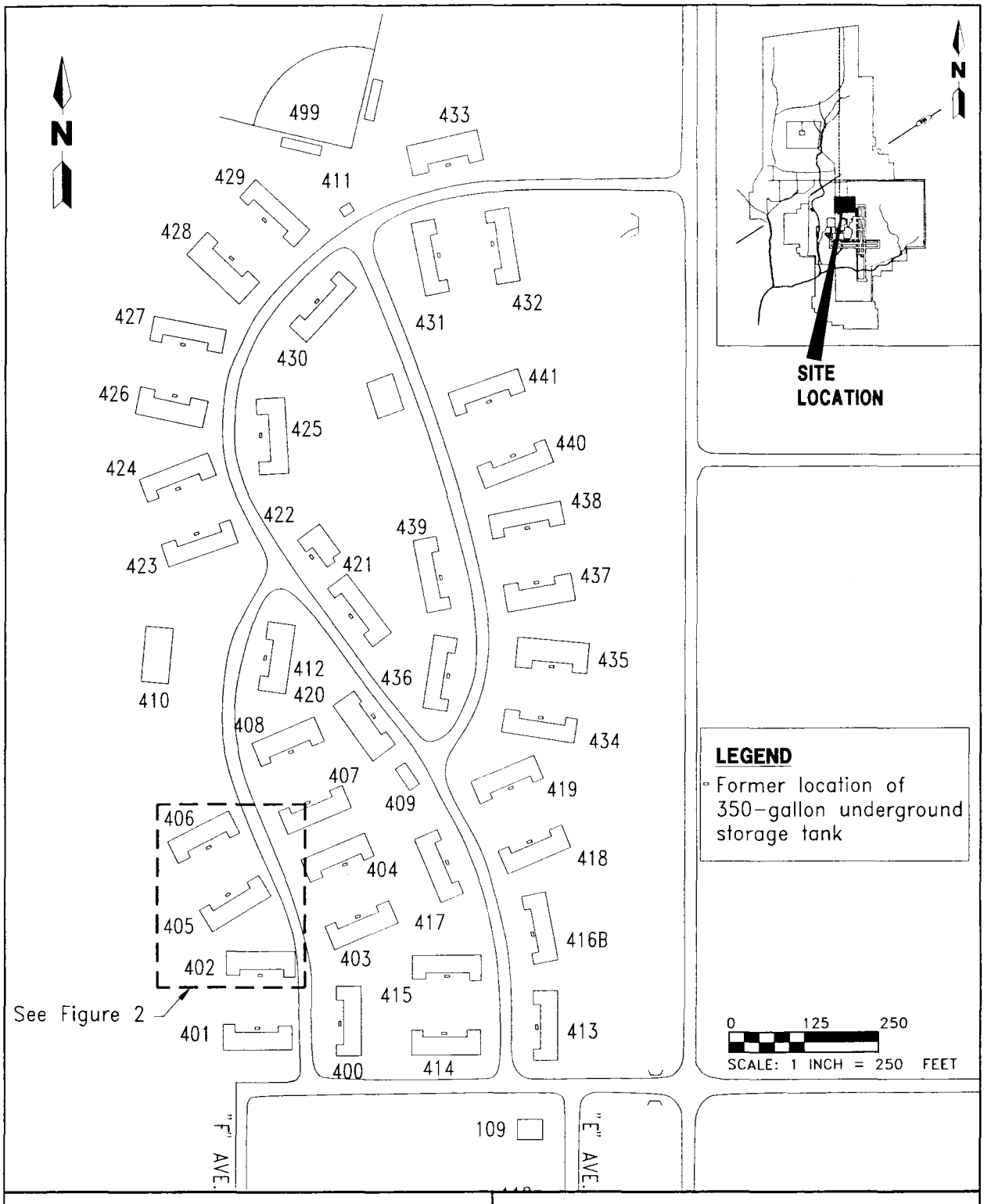


FIGURE 1
TANK 405
BASE FAMILY HOUSING

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CONFIRMATORY SAMPLING REPORT
BUILDING 405, TANK 405

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T405.CSR
SAS.01.98

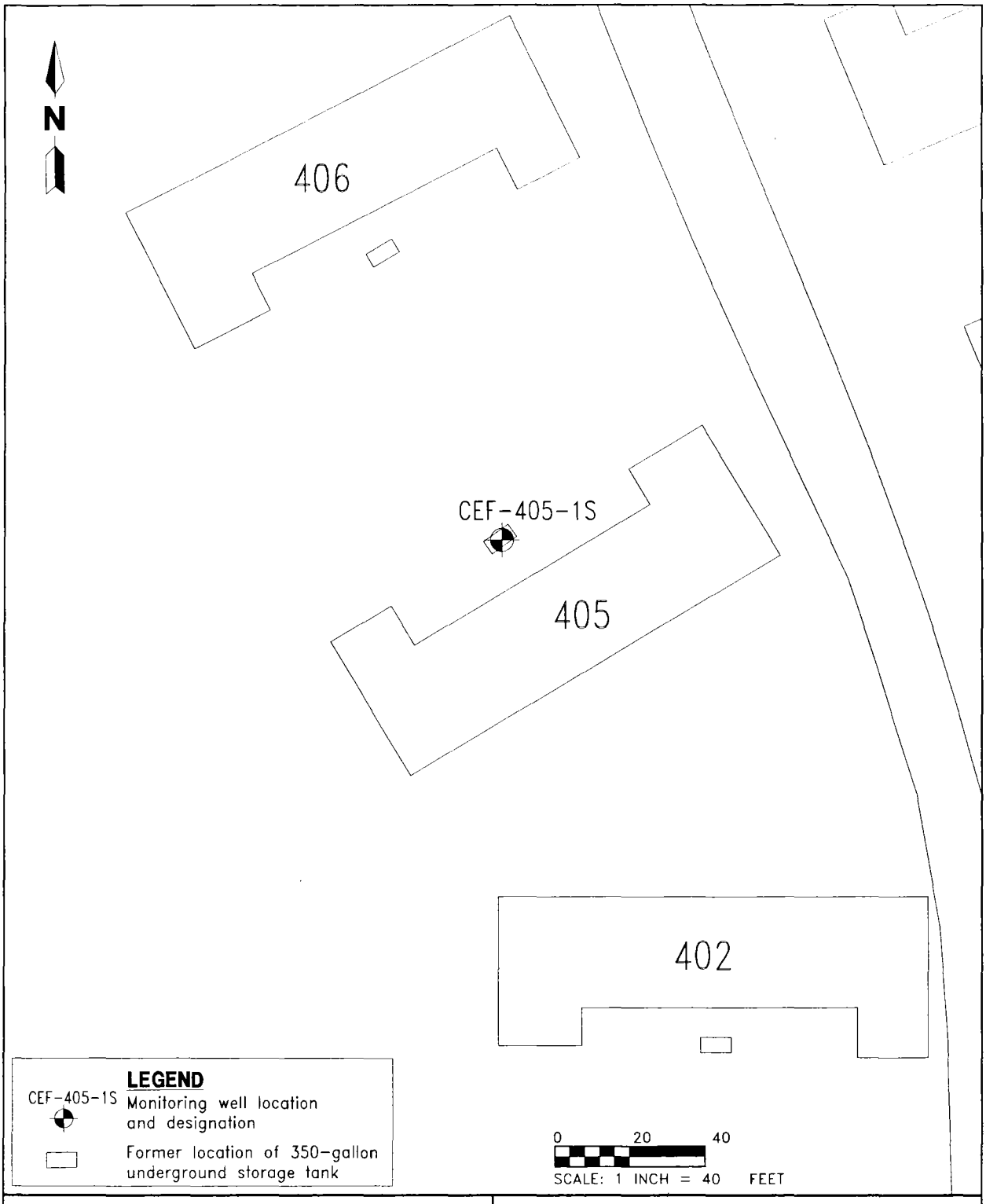

FIGURE 2
MONITORING WELL LOCATION

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CONFIRMATORY SAMPLING REPORT
BUILDING 405, TANK 405

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T405.CSR
SAS.01.98

Table 1
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building 405, Tank 405
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells		Groundwater Cleanup Target Levels[1]
	ISI Temporary Well	CEF-405-1S	
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Benzene	1.4	ND	1
Xylenes	3.7	4.8	20
1,2-Dichloroethane	3.4	ND	3
1,4-Dichlorobenzene	3.0	ND	NA
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)			
No compounds detected.			
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)			
TRPH	ND	3.3	5
Lead (USEPA Method 239.2) (µg/ℓ)			
Lead	9	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on May 5, 1995, and by ABB Environmental Services, Inc., on August 6, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
ND = compound not detected.
NA = no applicable standard.
FL-PRO = Florida-Petroleum Residual Organic.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(8)
Form Title Closure Assessment Form
Effective Date December 10, 1990
DER Application No. _____ (Filled in by DER)

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: January 30, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Cecil Field Housing: Unit 405
5. Facility Owner: U.S. Navy
6. Facility Address: N.A.S. Cecil Field
7. Mailing Address: N.A.S. Cecil Field
8. Telephone Number: (____) _____ 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or (B. Underground)
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): **(Circle one)** A. Replaced (B. Removed) C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One 14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☐	☒		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☐	☒	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____

Northwest District 160 Governmental Center Pensacola, Florida 32501-5794
Northeast District 7825 Baymeadows Way, Suite B 200 Jacksonville, Florida 32207
Central District 3319 Maguire Blvd., Suite 232 Orlando, Florida 32803 3767
Southwest District 4520 Oak Fair Blvd Tampa, Florida 33610-7347
South District 2269 Bay St Fort Myers, Florida 33901-2896
Southeast District 1900 S Congress Ave Suite A West Palm Beach, Florida 33406

DER Form #	17-761.600(b)
Form Title	Closure Assessment Form
Effective Date	December 10, 1990
DER Application No.	(Filled in by DER)

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner	Date
Signature of Person Performing Assessment	3/3/95 Date
Professional Geologist Title of Person Performing Assessment	

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene 1 ug/l
   b. Total VOA 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) 50 ug/l

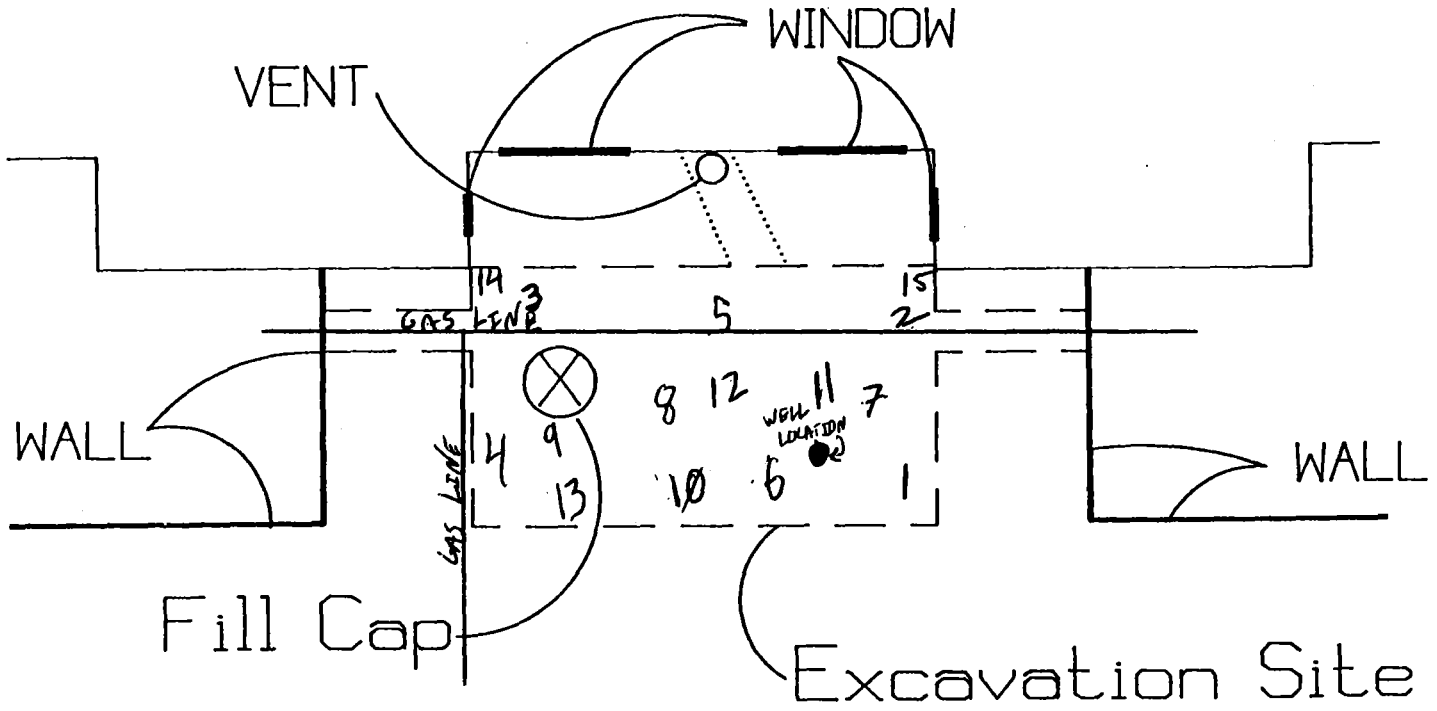
2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Closure Report for Cecil Field Housing
Building 405

OVA RESULTS**

Sample #	W/O Carbon	W/Carbon	Adjusted	Depth (FT)
1	0	0	0	1.00
2	0	0	0	1.00
3	0	0	0	1.00
4	0	0	0	1.00
5	0	0	0	1.00
6	0	0	0	2.00
7	0	0	0	3.00
8	2	0	2	2.00
9	2	0	2	3.00
10	0	0	0	4.00
11	1	0	1	4.00
12	0	0	0	4.50
13	0	0	0	3.50
14	0	0	0	1.00
15	0	0	0	1.00

**= Results are in ppm



Bldg. 405

NORTH

Geological Environmental and Oceanographic Sciences, Inc.

1627 East 8th Street
Jacksonville, Florida 32206-5407
(904) 354-6755
(800) 486-6755
(904) 354-3799 Fax

Water
Soil
Air
Analysis and Consulting

Geos Inc.

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

Page 1
27 Feb 1995
Report J5-02-043-01
LAB ID. 82223/E82101

Sample Description:
ISI/CECIL FIELD
TEMP. MONITOR WELLS
GROUNDWATER

SAMPLE ID.: BLDG. 405
COLLECTED: 02/06/95 10:15
RECEIVED: 02/06/95
COLLECTED BY: N. ROGERS/R. RUSHING

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: KERO KEROSENE GROUP								
Hydrocarbons, Total IR	<0.200		mg/L	418.1	0.200	02/07/95	02/07/95	AM
Lead, Total	0.009		mg/L	239.2	0.005	02/07/95	02/09/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
Acenaphthylene	BDL		µg/L		10	02/08/95	02/08/95	MD
1-Methylnaphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
2-Methylnaphthalene	BDL		µg/L		10	02/08/95	02/08/95	MD
Acenaphthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Fluorene	BDL		µg/L		10	02/08/95	02/08/95	MD
Phenanthrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(a)anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Chrysene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(b)fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(k)fluoranthene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(a)pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	02/08/95	02/08/95	MD
Dibenzo(a,h)anthracene	BDL		µg/L		10	02/08/95	02/08/95	MD
Benzo(g,h,i)perylene	BDL		µg/L		10	02/08/95	02/08/95	MD
Surrogates								
Nitrobenzene-d5	71	Min: 35		Max: 114				
2-Fluorobiphenyl	96	Min: 43		Max: 116				
4-Terphenyl-d14	96	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	02/17/95	02/17/95	TBY
Benzene	1.4		µg/L		1.0	02/17/95	02/17/95	TBY

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

27 Feb 1995
Report J5-02-043-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Toluene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Ethyl benzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Xylene, Total	3.7		µg/L		1.0	02/17/95	02/17/95	TBY
Chlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,4-Dichlorobenzene	3.0		µg/L		1.0	02/17/95	02/17/95	TBY
1,3-Dichlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,2-Dichlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Surrogates								
Bromobenzene	102	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Chloromethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Bromomethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Vinyl chloride	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Chloroethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Methylene chloride	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Trichlorofluoromethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,1-Dichloroethene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,1-Dichloroethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
total-1,2-Dichloroethene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Chloroform	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,2-Dichlorethane	3.4		µg/L		1.0	02/17/95	02/17/95	TBY
1,1,1-Trichloroethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Carbon tetrachloride	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Bromodichloromethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,2-Dichloropropane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
trans-1,3-Dichloropropene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Trichloroethene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Dibromochloromethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,1,2-Trichloroethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
cis-1,3-Dichloropropene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
2-Chloroethylvinyl ether	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Bromoform	BDL		µg/L		1.0	02/17/95	02/17/95	TBY

ISI100014396
Attn: STEVE DILLON

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

27 Feb 1995
Report J5-02-043-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Tetrachloroethene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
Chlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,3-Dichlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,2-Dichlorobenzene	BDL		µg/L		1.0	02/17/95	02/17/95	TBY
1,4-Dichlorobenzene	2.3		µg/L		1.0	02/17/95	02/17/95	TBY
Surrogates								
Bromobenzene	102	Min: 70		Max: 130				

Karen T. Foreman
Karen Foreman, Laboratory Director

403

405

Lab Results UNIT 400
VS.
Florida DEP Ground Water Guidance Concentration

Bldg #	Test Done		Result	Guidance [ ]
400	Lead, Total		0.033 ppm *	0.015 ppm
401	Hydrocarbons, Toral IR		0.661 ppm	
	Lead, Total		0.040 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	2.0 ppb	
		Xylene, Total	2.8 ppb	
		Total BETX	4.8 ppb	50 ppb
402	Lead, Total		0.032 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	10.3 ppb	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.5 ppb	
		Total BETX	13.8 ppb	50 ppb
	Volatile Halocarbons	1, 4 - Dichlorobenzene	2.6 ppb	75 ppb
403	Lead, Total		0.071 ppm *	0.015 ppm
405	Lead, Total		0.009 ppm *	0.015 ppm
	Volatile Aromatics	Benezene	1.4 ppb	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.7 ppb	
		Total BETX		50 ppb
		1, 4 - Dichlorobenzene	3.0 ppb	75 ppb
	Volatile Halocarbons	1, 2 - Dichloroethane	3.4 ppb	3.0 ppb
		1, 4 - Dichlorobenzene	2.3 ppb	75 ppb
412	Lead, Total		0.015 ppm *	0.015 ppm
413	Lead, Total		0.007 ppm *	0.015 ppm
414	Lead, Total		0.048 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	BDL	
		Toluene	BDL	
		Xylene, Total	3.7 ppb	
		Total BETX	3.7 ppb	50 ppb
415	Lead Total		0.063 ppm *	0.015 ppm
	Volatile Aromatics	Benzene	BDL	1.0 ppb
		Ethyl benzene	2.6 ppb	
		Toluene	BDL	
		Xylene, Total	9.1 ppb	
		Total BETX	11.7 ppb	50 ppb
	Volatile Halocarbons	Chloroform	6.0 ppb	6.0 ppb
		Carbon Tetrachloride	9.0 ppb	3.0 ppb
417	Hydrocarbons, Total IR		1.75 ppm	
	Lead, Total		0.059 ppm *	0.015 ppm

*** Test results for lead probably represents background levels, and not a contaminant.**

APPENDIX B

MONITORING WELL INSTALLATION DETAIL

PROJECT: NAS Cecil Field BRAC UST Site		**LOG of WELL:** CEF-405-1S	**BORING NO.** CEF-405-1S
CLIENT: SOUTHDIVNAVFACENGCOM	**PROJECT NO:** 8571-03	**DATE STARTED:** 7-16-97	**COMPLETED:** 7-16-97
DRILLING SUBCONTRACTOR: Alliance		**SITE:** Quarters 405 (Housing)	**MONITOR INST.** PID
METHOD: 6.25" ID HSA	**WELL CASE DIAM.:** 2"	**SCREEN INT.:** 3-13 FT.	**SCREEN SLOT SIZE:** 0
TOC ELEVATION: FT. NGVD	**GROUND ELEV.:** FT. NGVD	**NORTHING:**	**EASTING:**
WELL DEVELOP. DATE: 7-23-97	**TOTAL DEPTH:** 14 FT. BLS	**DEPTH TO ▽** 3.08 FT. BLS	**LOGGED BY:** J tarr

DEPTH FT.	SAMPLE INTERVAL	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SILTY SAND: Gray, fine grain with silt.		SM	posthole	
			1,800	CLAYEY SAND: Light gray to blue, 30% clay, petroleum odor.		SC	posthole	
5		50%	120	SILTY SAND: Light gray, fine grain with silt, poorly graded, slight petroleum odor.		SM	1,2,3,3	
10		50%	90	SILTY SAND: Light brown, fine grain with silt, poorly graded, wet.			1,1,2,3	
15								
20								

APPENDIX C

GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 405 -- REPORT NO. 9548

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-405-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
BRACGREY ANAYLTICAL PARAMETERS				
1,1,1-Trichloroethane	1	U	ug/L	1
1,1,2,2-Tetrachloroethane	1	U	ug/L	1
1,1,2-Trichloroethane	1	U	ug/L	1
1,1-Dichloroethane	1	U	ug/L	1
1,1-Dichloroethene	1	U	ug/L	1
1,2-Dichlorobenzene	1	U	ug/L	1
1,3-Dichlorobenzene	1	U	ug/L	1
1,4-Dichlorobenzene	1	U	ug/L	1
1,2-Dichloroethane	1	U	ug/L	1
1,2-Dichloropropane	1	U	ug/L	1
1-Methylnaphthalene	2	U	ug/L	2
2-Methylnaphthalene	2	U	ug/L	2
Acenaphthene	2	U	ug/L	2
Acenaphthylene	2	U	ug/L	2
Anthracene	2	U	ug/L	2
Benzene	1	U	ug/L	1
Benzo (a) anthracene	.1	U	ug/L	.1
Benzo (a) pyrene	.1	U	ug/L	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2
Benzo (k) fluoranthene	.15	U	ug/L	.15
Bromodichloromethane	1	U	ug/L	1
Bromoform	1	U	ug/L	1
Bromomethane	1	U	ug/L	1
Carbon tetrachloride	1	U	ug/L	1
Chlorobenzene	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chloroform	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chrysene	.1	U	ug/L	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2
Dibromochloromethane	1	U	ug/L	1
Dichlorodifluoromethane	1	U	ug/L	1
Ethylbenzene	1	U	ug/L	1
Ethylene dibromide	.02	U	ug/L	.02
Fluoranthene	.2	U	ug/L	.2
Fluorene	2	U	ug/L	2
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1
Lead	5	U	ug/L	5
Methyl tert-butyl ether	1	U	ug/L	1
Methylene chloride	5	U	ug/L	5
Naphthalene	2	U	ug/L	2
Phenanthrene	2	U	ug/L	2
Pyrene	.2	U	ug/L	.2
Tetrachloroethene	1	U	ug/L	1
Toluene	1	U	ug/L	1
Total petroleum hydrocarbons	.5	U	mg/L	.5
Trichloroethene	1	U	ug/L	1
Trichlorofluoromethane	1	U	ug/L	1
Vinyl chloride	1	U	ug/L	1

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 405 -- REPORT NO. 9548

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-405-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
Xylenes (total)	4.8		ug/L	1
cis-1,3-Dichloropropene	1	U	ug/L	1
trans-1,2-Dichloroethene	1	U	ug/L	1
trans-1,3-Dichloropropene	1	U	ug/L	1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 420, TANK 420

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Confirmatory Sampling Report
Building 420, Tank 420
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF FIGURES

Confirmatory Sampling Report
Building 420, Tank 420
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ISI	Innovative Services International, Inc.
OVA	organic vapor analyzer
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for Tank 420 at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

Tank 420 was an underground storage tank (UST) located on the east side of Building 420, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). Tank 420 was removed by Innovative Services International, Inc. (ISI), on June 15, 1995. A closure assessment report (Appendix A) was prepared for Tank 420 and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that excessively contaminated soil was present at the site but did not indicate whether or not the excessively contaminated soil was removed. Therefore, to evaluate the current soil conditions, the petroleum subcommittee (selected by the Naval Air Station Cecil Field partnering team) identified locations for soil screening. A contamination assessment plan for the Tank 420 site was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Tank 420 was initiated in June 1997 and included the advancement of two soil borings to the water table.

Soil samples were collected at depth intervals of 1 foot below land surface and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA). A general site plan indicating the location of the soil borings is presented on Figure 2.

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil was not detected in soil samples collected from the unsaturated zone during the confirmatory sampling. The soil OVA data are summarized in Table 1.

Groundwater analytical results from the closure assessment are summarized in Table 2.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling at the Tank 420 site does not indicate the presence of contaminated soil. Contaminants were not detected above regulatory standards specified in Chapter 62-770, FAC in the groundwater sample collected during the closure assessment (ISI, 1995). Therefore, no further action is recommended for the Tank 420 site.

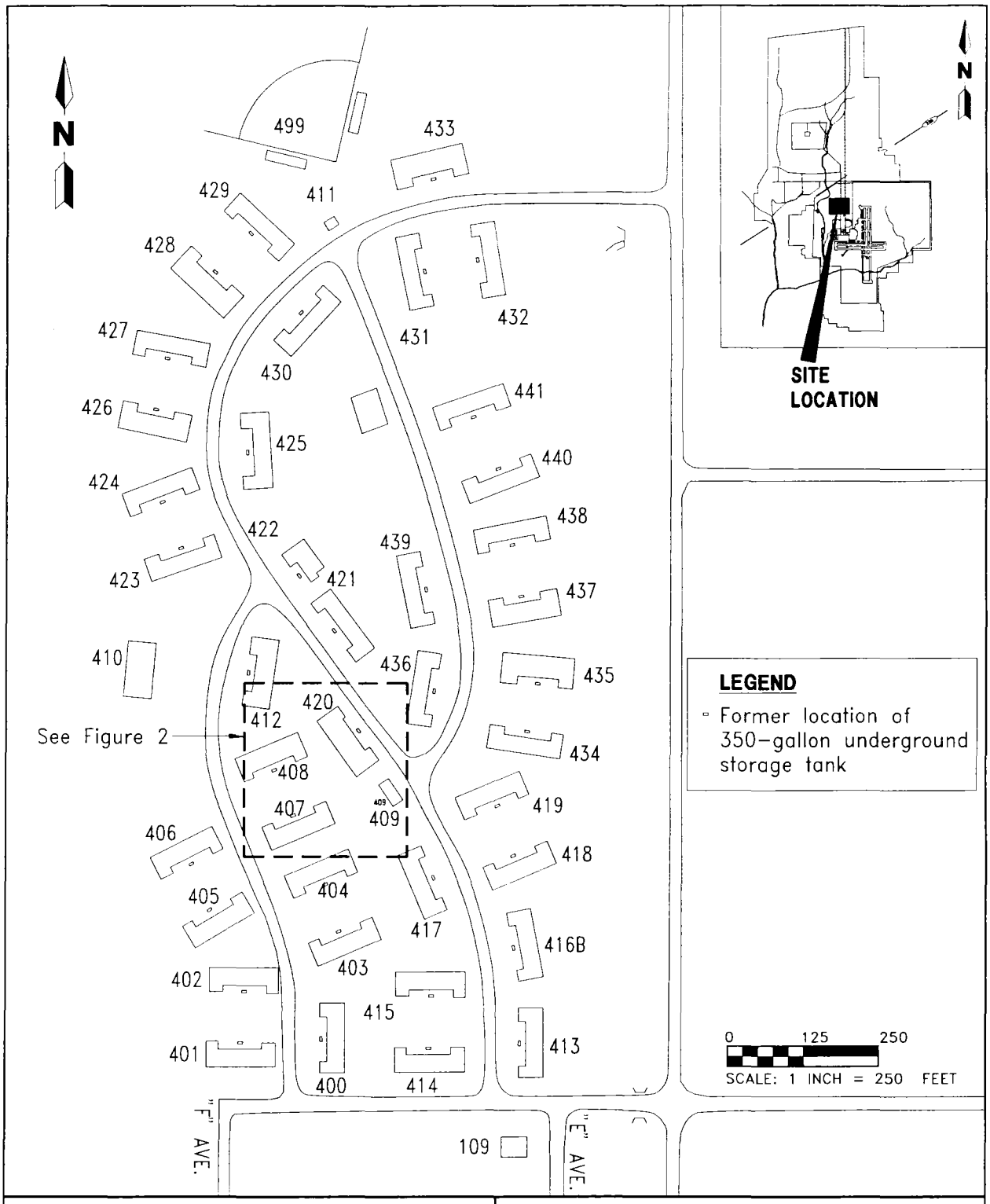

FIGURE 1
TANK 420
BASE FAMILY HOUSING

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CONFIRMATORY SAMPLING REPORT
BUILDING 420, TANK 420

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T420.CSR
SAS.01.98

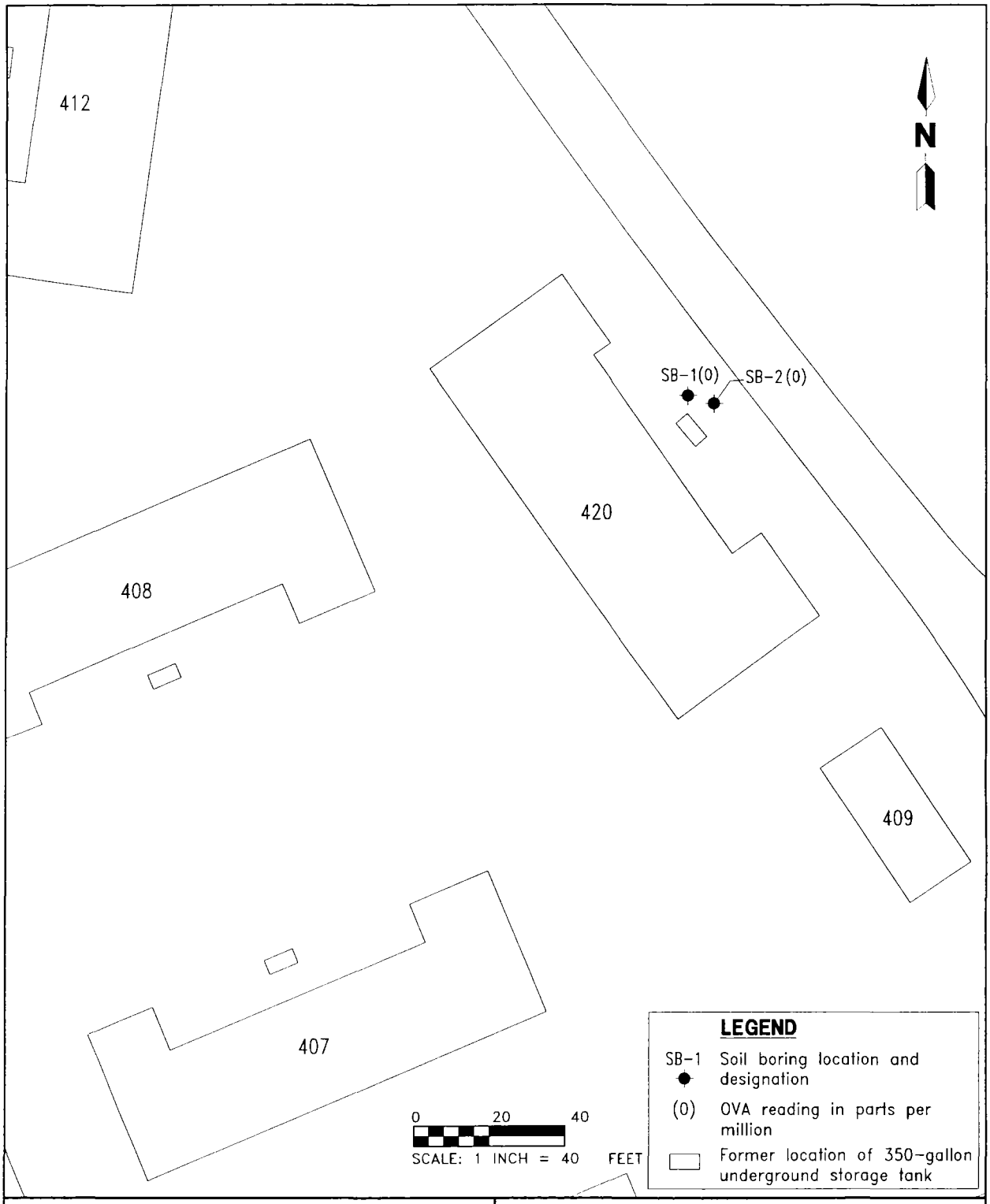

FIGURE 2
SOIL BORING LOCATIONS

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CONFIRMATORY SAMPLING REPORT
BUILDING 420, TANK 420

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Soil Screening Results

Confirmatory Sampling Report
Building 420, Tank 420
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB-1	1	0	--	0
	3	0	--	0
	4.5 (wet)	0	--	0
SB-2	1	0	--	0
	3	0	--	0
	4.5 (wet)	0	--	0

Notes: All soil samples were collected on June 16, 1997.
Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
-- = filtered readings were not collected.
wet = soil sample was completely saturated when analyzed.

Table 2
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building 420, Tank 420
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	ISI Closure Assessment Temporary Well	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)		
No compounds detected.		
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)		
No compounds detected.		
Total Recoverable Petroleum Hydrocarbons (USEPA Method 418.1) (mg/ℓ)		
No compounds detected.		
Lead (USEPA Method 239.2) (µg/ℓ)		
Lead	8	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected on June 20, 1995, by ISI during the closure assessment.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(6)
Form Title: Closure Assessment Form
Effective Date: December 10 1990
DER Application No. _____
(Filled in by DER)

Closure Assessment Form

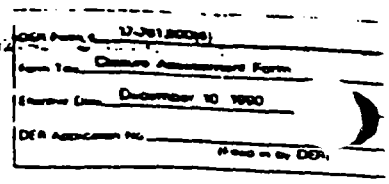
Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: July 10, 1995
2. DER Facility ID Number: N/A
3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Enlisted Housing Unit # 420
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (____) _____
9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or XB. Underground
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): (Circle one) A. Replaced XB. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One (1)
14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☐	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☐	☒	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____



12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample location and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Metho 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitte to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered pro gram office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner — Date

Signature of Person Performing Assessment — 7/11/95 — Date

Professional Geologist
Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene 1 ug/l
   b. Total VOA 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(5)
Form Title Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date December 10, 1990
DER Application No. (Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Enlist Telephone: (____) _____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing # 420
4. Owner Name: U.S. Navy Telephone: (____) _____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time _____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown
8. Date Work Initiated: 6/15/95 9. Date Work Completed: 6/16/95

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these instututions.

Underground Pollutant Tank Removal Checklist

1. Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☒
2. Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District 160 Governmental Center Pensacola, Florida 32501-5794 904-436-8300
Northeast District 7825 Baymeadows Way, Suite B 200 Jacksonville, Florida 32207 904-798-4200
Central District 3319 Maguire Blvd. Suite 232 Orlando, Florida 32803-3767 407-894-7555
Southwest District 4520 Oak Fair Blvd Tampa, Florida 33610-7347 813-623-5561
South District 2269 Bay St Fort Myers, Florida 33901-2896 813-332-6975
Southeast District 1800 S Congress Ave., Suite A West Palm Beach, Florida 33406 407-433-2650

DER Form No. 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Construction
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Richard Boardman — PCC054952

(Type or Print)
Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PSSSC Number

[signature] — 7-12-95

Certified Tank Contractor Signature — Date

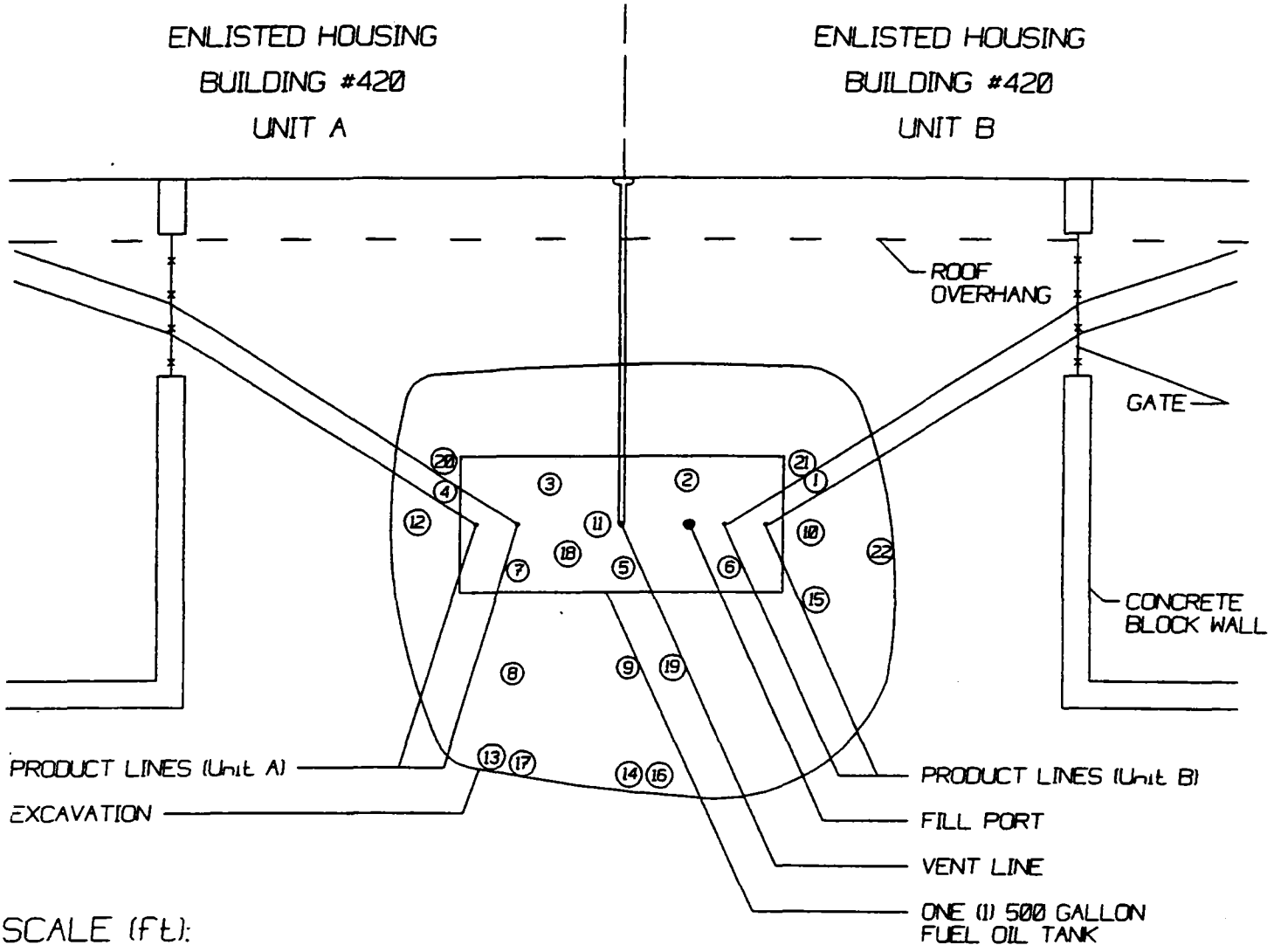
VERNON MCKINNON — 7-12-95

(Type or Print)
Field Supervisor Name — Date

[signature] — 7-12-95

Field Supervisor Signature — Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.



SAMPLE #	HC READING	DEPTH	TIME (COLLECTED/READ)	SAMPLE #	HC READING	DEPTH	TIME (COLLECTED/READ)
1	0.0	1'	9:18/9:24	12	1.5	2'	10:30/10:34
2	0.0	1'	9:19/9:24	13	0.0	4'	11:03/11:05
3	0.0	1'	9:19/9:25	14	0.0	4'	11:03/11:05
4	0.0	1'	9:20/9:25	15	115.0	5.5'	12:07/12:15
5	0.0	1.5'	9:28/9:33	16	3.3	5.5'	12:07/12:15
6	0.0	1.5	9:28/9:33	17	14.2	5.5'	12:08/12:16
7	0.0	1.5'	9:29/9:34	18	121.7	5.5'	12:09/12:16
8	0.0	2.5'	9:38/9:43	19	46.3	6'	12:09/12:19
9	0.0	2.5	9:39/9:44	20	11.9	5.5'	14:40/14:46
10	0.0	2.5'	9:39/9:44	21	8.5	5.5'	14:40/14:47
11	0.0	2'	9:40/9:45	22	1.5	5.5'	14:42/14:48

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 580B PHOTOIONIZATION DETECTOR.

INNOVATIVE SERVICES INTERNATIONAL, INC.

SITE PLAN

ENLISTED HOUSING UNIT #420

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

Geos inc.

ANALYTICAL LABORATORY & CORPORATE OFFICES (904) 786-8340
1057 NORTH ELLIS ROAD, SUITE 17 (800) 770-4367 (GEOS)
JACKSONVILLE, FLORIDA 32254-2249 FAX: (904) 786-7489

GEOLOGICAL, ENVIRONMENTAL AND OCEANOGRAPHIC SCIENCES, INC.

ENVIRONMENTAL SPECIALTY LABORATORY (813) 626
5909A BRECKENRIDGE PARKWAY FAX: (813) 626-0746
TAMPA, FLORIDA 33610-4237

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

30 Jun 1995
Report J5-06-185-01
LAB ID. 82223/E82101

Sample Description:
CECIL FIELD ENLISTED HOUSING/ CECIL FIELD N.A.S.
TEMP. WELL @ ENLISTED HOUSING #420
GROUNDWATER

SAMPLE ID.: ENL-420-695
COLLECTED: 06/20/95 14:41
RECEIVED: 06/20/95
COLLECTED BY: S. VOCKELL

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Hydrocarbons, Total IR	<0.200		mg/L	418.1	0.200	06/27/95	06/28/95	AM
Lead, Total	0.008		mg/L	239.2	0.005	06/29/95	06/30/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	06/27/95	06/28/95	AT
Acenaphthylene	BDL		µg/L		10	06/27/95	06/28/95	AT
1-Methylnaphthalene	BDL		µg/L		10	06/27/95	06/28/95	AT
2-Methylnaphthalene	BDL		µg/L		10	06/27/95	06/28/95	AT
Acenaphthene	BDL		µg/L		10	06/27/95	06/28/95	AT
Fluorene	BDL		µg/L		10	06/27/95	06/28/95	AT
Phenanthrene	BDL		µg/L		10	06/27/95	06/28/95	AT
Anthracene	BDL		µg/L		10	06/27/95	06/28/95	AT
Fluoranthene	BDL		µg/L		10	06/27/95	06/28/95	AT
Pyrene	BDL		µg/L		10	06/27/95	06/28/95	AT
Benzo(a)anthracene	BDL		µg/L		10	06/27/95	06/28/95	AT
Chrysene	BDL		µg/L		10	06/27/95	06/28/95	AT
Benzo(b)fluoranthene	BDL		µg/L		10	06/27/95	06/28/95	AT
Benzo(k)fluoranthene	BDL		µg/L		10	06/27/95	06/28/95	AT
Benzo(a)pyrene	BDL		µg/L		10	06/27/95	06/28/95	AT
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	06/27/95	06/28/95	AT
Dibenzo(a,h)anthracene	BDL		µg/L		10	06/27/95	06/28/95	AT
Benzo(g,h,i)perylene	BDL		µg/L		10	06/27/95	06/28/95	AT
Surrogates								
Nitrobenzene-d5	95	Min: 35		Max: 114				
2-Fluorobiphenyl	89	Min: 43		Max: 116				
4-Terphenyl-d14	91	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	06/22/95	06/22/95	MD
Benzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Toluene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Ethyl benzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Xylene, Total	BDL		µg/L		1.0	06/22/95	06/22/95	MD

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

30 Jun 1995
Report J5-06-185-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Chlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Surrogates								
Bromobenzene	102	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Chloromethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Bromomethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Vinyl chloride	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Chloroethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Methylene chloride	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Trichlorofluoromethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,1-Dichloroethene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,1-Dichloroethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
total-1,2-Dichloroethene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Chloroform	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,2-Dichlorethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,1,1-Trichloroethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Carbon tetrachloride	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Bromodichloromethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,2-Dichloropropane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
trans-1,3-Dichloropropene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Trichloroethene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Dibromochloromethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,1,2-Trichloroethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
cis-1,3-Dichloropropene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
2-Chloroethylvinyl ether	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Bromoform	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Tetrachloroethene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

30 Jun 1995
Report J5-06-185-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/22/95	06/22/95	MD
Surrogates								
Bromobenzene	101	Min: 70		Max: 130				

Karen T. Foreman

Karen Foreman, Laboratory Director

CHAIN OF CUSTODY RECORD

Geos Inc.

☐ 1057 N. ELLIS ROAD, SUITE 17, JACKSONVILLE, FL 32254-2249 • (904) 786-8340
☐ 5909A BRECKENRIDGE PARKWAY, TAMPA, FL 33610-4237 • (813) 626-0101

CLIENT NAME: ISI	PROJECT NAME: Cecil Field Enlisted Housing
ADDRESS:	P. O. NUMBER / PROJECT NUMBER
	PROJECT LOCATION: Cecil Field N.A.S.
PHONE: 778-2904 FAX:	
CONTACT: R. Boardman	SAMPLED BY: Scott W. Vockell
TURN AROUND TIME or RESULTS DUE BY: ☒ STANDARD ☐ VERBAL ☐ RUSH ☐ FAX ☐ OTHER ☐ HARD COPY	SPECIAL INSTRUCTIONS:

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX*	# OF CONT.	CONTAINER SIZE	# of 40ml HCl	1000ml AG UN	1000ml AG HCl	500ml Plastic HNO3	601, 602 + MTBE	610	TPH	PB					
ENC-420-695	Temp Well @ Enlisted Housing #420	6/20/95	1441	GW	6		X				X	X	X	X					

* GW—Groundwater SW—Surface Water DW—Drinking Water WW—Wastewater SO—Solid/Soil SL—Sludge HW—Hazardous Waste A—Air

FIELD PARAMETERS / COMMENTS:

TRANS. NO.	TRANSFERS RELINQUISHED BY:	ACCEPTED BY:	DATE	TIME
1	Scott W Vockell	K Bavell	6/20/95	1640
2				
3				
4				

CONTAINERS/SEALS INTACT: ☑ YES ☐ NO | COOLER T°C: ☑ YES ☐ NO | SHIPPED VIA:

DISTRIBUTION: White—Client Copy w—Lab Copy Pink—Sample Copy

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 431, TANK 431

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Confirmatory Sampling Report
Building 431, Tank 431
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF FIGURES

Confirmatory Sampling Report
Building 431, Tank 431
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
FAC	Florida Administrative Code
ISI	Innovative Services International, Inc.
OVA	organic vapor analyzer
TRPH	total recoverable petroleum hydrocarbons
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for Tank 431 at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

Tank 431 was an underground storage tank (UST) located on the east side of Building 431, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). Tank 431 was removed by Innovative Services International, Inc. (ISI), on June 21, 1995. A closure assessment report (Appendix A) was prepared for Tank 431 and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated that groundwater contamination was below State target levels and that excessively contaminated soil was present at the site but did not indicate whether or not the excessively contaminated soil was removed. Therefore, to evaluate the current soil and groundwater conditions, the petroleum subcommittee (selected by the Naval Air Station Cecil Field partnering team) identified locations for soil screening and monitoring well installation. A contamination assessment plan for the Tank 431 site was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Tank 431 was initiated in June 1997 and included

- the advancement of five soil borings to the water table,
- the installation of one shallow groundwater monitoring well, and
- collection and analysis of one groundwater sample.

Soil samples were collected at depth intervals of 1 foot below land surface (bls) and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA).

One monitoring well, CEF-431-1S, was installed at the former UST location to a depth of 13 feet bls. One groundwater sample was collected on August 6, 1997, and analyzed for the Kerosene Analytical Group parameters. A general site plan indicating the location of the monitoring well CEF-431-1S is presented on Figure 2. The monitoring well installation detail is included in Appendix B.

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil was not detected in soil samples collected from the unsaturated zone during the confirmatory sampling. The soil OVA data are summarized in Table 1.

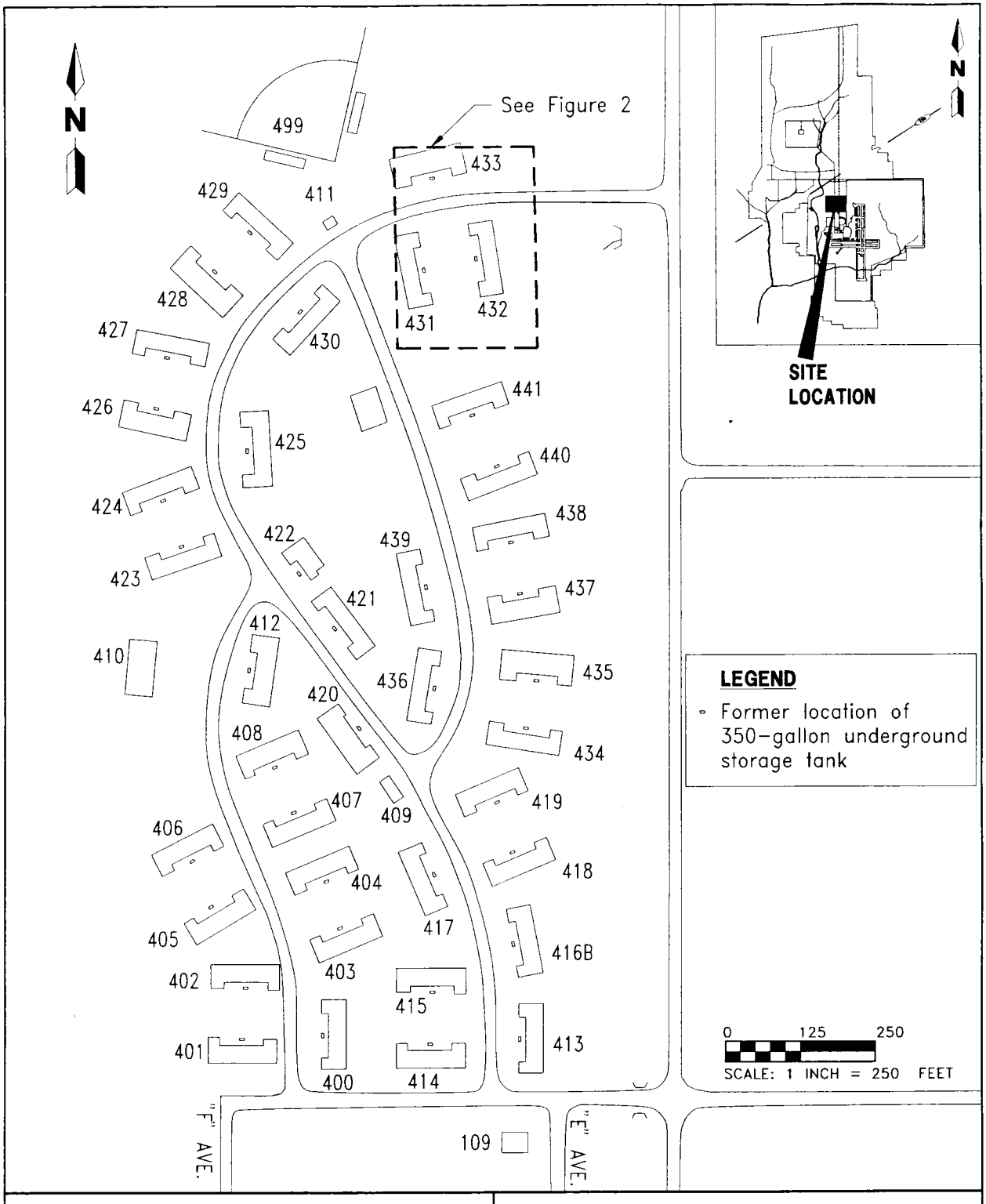

FIGURE 1
TANK 431
BASE FAMILY HOUSING

K:\02549\02549-03\CAR\02549512.DWG, NP 01/07/98 15:47:20, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
BUILDING 431, TANK 431

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

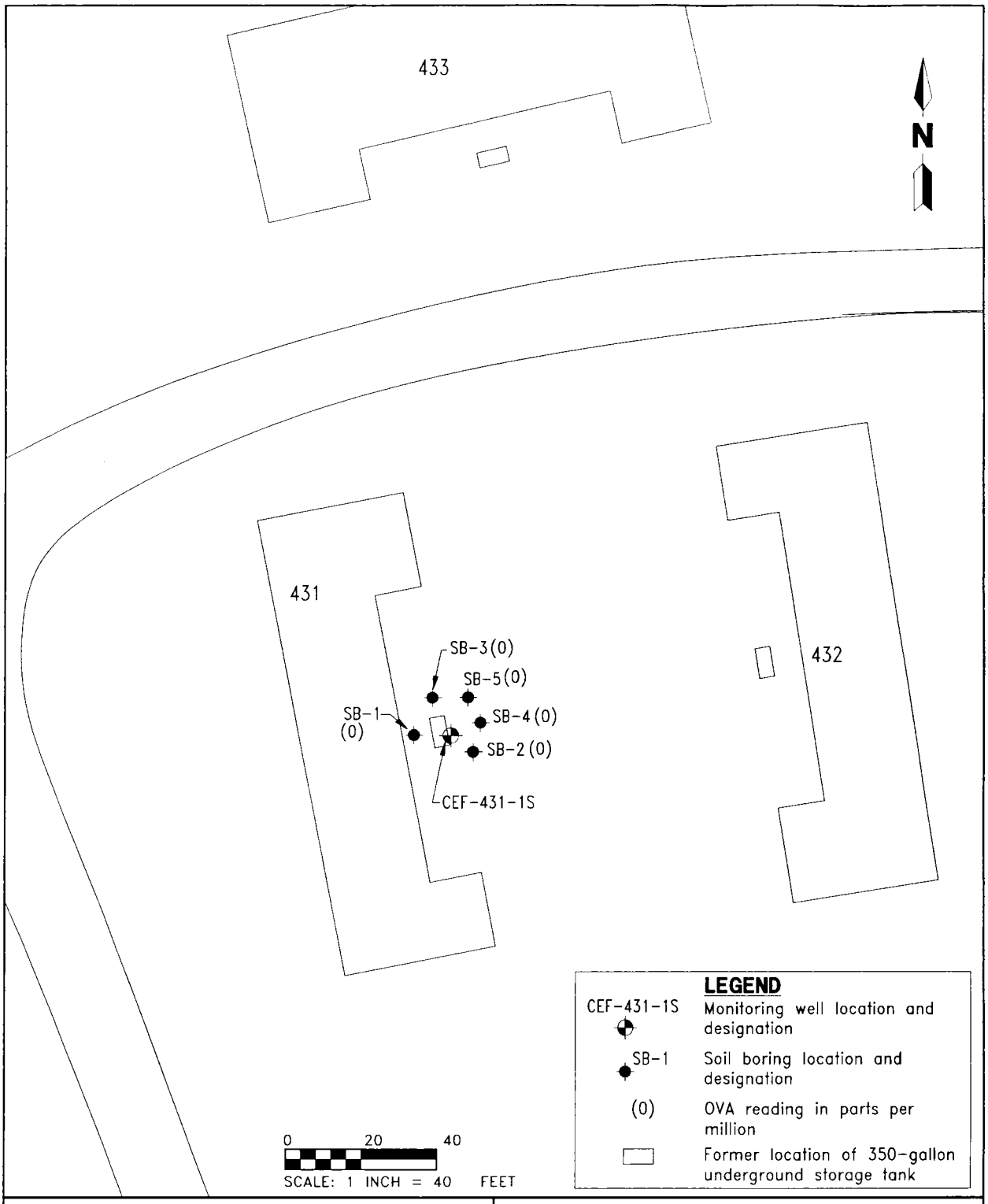

FIGURE 2
SOIL BORING AND MONITORING WELL LOCATIONS

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CONFIRMATORY SAMPLING REPORT
BUILDING 431, TANK 431

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Soil Screening Results

Confirmatory Sampling Report
Building 431, Tank 431
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB-1	1	0	--	0
	3 (wet)	0	--	0
SB-2	1	0	--	0
	3 (wet)	25	0	25
SB-3	1	0	--	0
	3 (wet)	0	--	0
SB-4	1	0	--	0
	3 (wet)	0	--	0
SB-5	1	0	--	0
	3 (wet)	0	--	0

Notes: All soil samples were collected on June 5, 1997.
Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
-- = filtered readings were not collected.
wet = soil sample was completely saturated when analyzed.

Total recoverable petroleum hydrocarbons (TRPH) was the only parameter detected in the groundwater sample collected from monitoring well CEF-431-1S. However, the TRPH concentration in groundwater was below the regulatory standard for Class G-II groundwater as specified in Chapter 62-770 of the Florida Administrative Code (FAC) (Table 2). The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling at the Tank 431 site does not indicate the presence of contaminated soil. No contaminants were detected above the regulatory standard specified in Chapter 62-770, FAC, in the groundwater sample collected from monitoring well CEF-428-1S. Therefore, no further action is recommended for the Tank 431 site.

Table 2
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building 431, Tank 431
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells		Groundwater Cleanup Target Levels[1]
	ISI Temporary Well	CEF-431-1S	
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Xylenes	5.9	ND	20
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)			
No compounds detected.			
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)			
TRPH	1.05	0.72	5
Lead (USEPA Method 239.2) (µg/ℓ)			
Lead	24	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on June 22, 1995, and by ABB Environmental Services, Inc., on August 6, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
ND = compound not detected.
FL-PRO = Florida-Petroleum Residual Organic.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(6)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____ (If known to the DER)

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: July 10, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Enlisted Housing Unit # 431
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (_____) _____ 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or XB Underground
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): **(Circle one)** A. Replaced XB. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One (1) 14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☐	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☐	☒	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations, and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner	Date
Signature of Person Performing Assessment	7/11/95 Date
Professional Geologist	
Title of Person Performing Assessment	

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene 1 ug/l
   b. Total VOA 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10 1990
DER Application No. _____ (Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Enlist Telephone: (____) _____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing #431
4. Owner Name: U.S. Navy Telephone: (____) _____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time _____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown
8. Date Work Initiated: 6/21/95 9. Date Work Completed: 6/26/95

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these instututions.

Underground Pollutant Tank Removal Checklist

Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☒

Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
7825 Baymeadows Way, Suite B 200
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd Suite 232
Orlando, Florida 32803 3767
407-894-7555

Southwest District
4520 Oak Fair Blvd
Tampa, Florida 33610-7347
813-623-5561

South District
2269 Bay St
Fort Myers, Florida 33901-2696
813-332-6975

Southeast District
1900 S Congress Ave. Suite A
West Palm Beach, Florida 33406
407-433-2650

DEP Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10, 1990
DEP Application No. _____ (Filled in by DEP)

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Robert Boardman — (Type or Print) Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PCC 054952 — PSSSC Number

[signature] — Certified Tank Contractor Signature

7-12-98 — Date

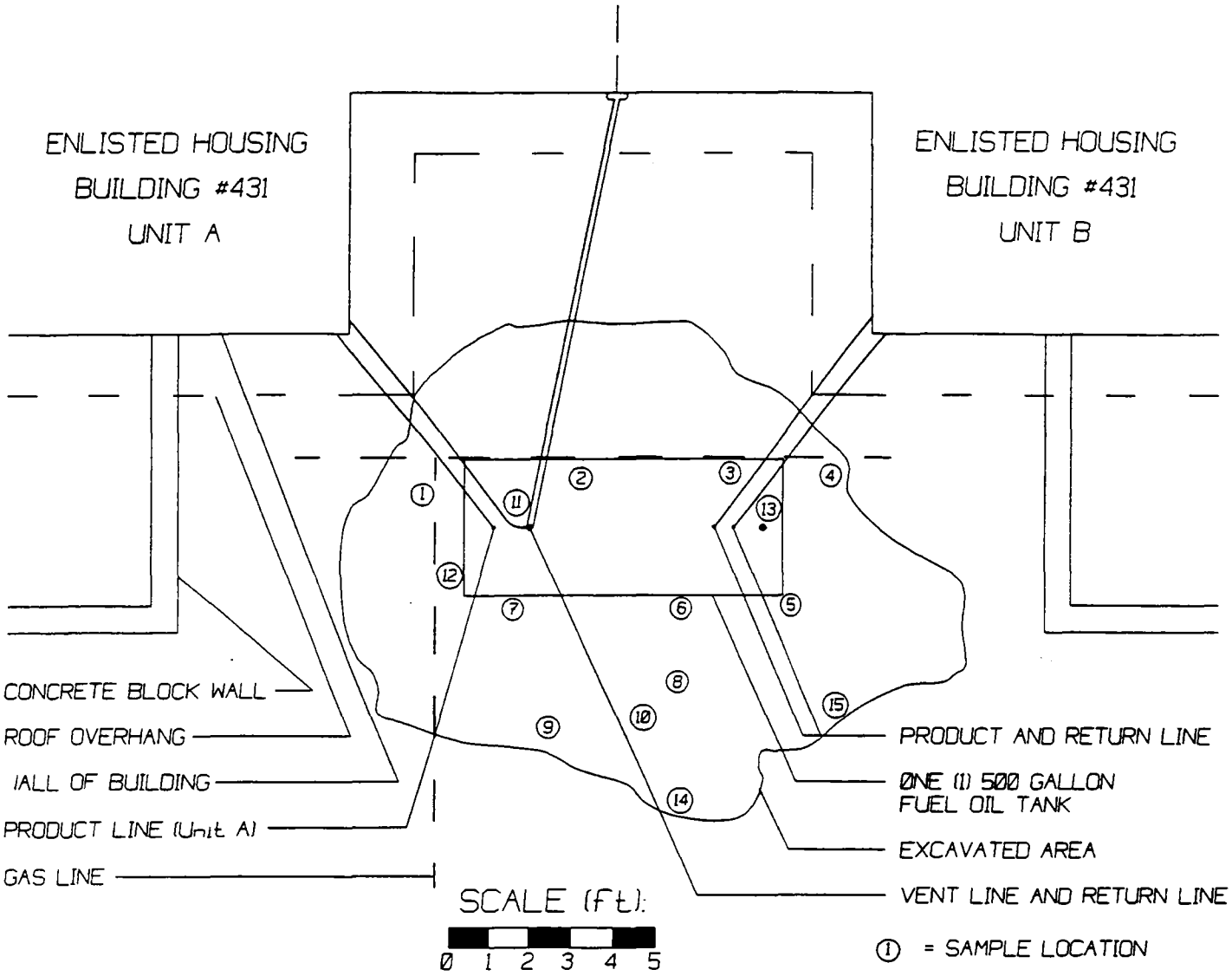
VERNON McGINNON — (Type or Print) Field Supervisor Name

7-12-98 — Date

[signature] — Field Supervisor Signature

7-12-98 — Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the **top** of page one.



SAMPLE #	HC READING	DEPTH	TIME (COLLECTED/READ)	SAMPLE #	HC READING	DEPTH	TIME (COLLECTED/READ)
1	0.0	1.5'	9:00/9:05	9	4.1	4.5'	10:25/10:30
2	0.7	1.5'	9:01/9:06	10	57.2	5.0'	10:32/10:37
3	40.7	1.5'	9:02/9:07	11	39.0	3.5'*	10:44/10:58
4	2.3	1.5'	9:02/9:07	12	125.8	3.5'*	10:46/10:59
5	2.5	1.0'	9:17/9:25	13	135.7	3.5'*	11:47/12:02
6	141.8	1.0'	9:19/9:26	14	13.2	1.5'	12:37/12:42
7	1.2	1.0'	9:21/9:26	15	1.5	1.5'	12:39/12:43
8	121.8	4.5'	9:59/10:04				

* = DUE TO THE HIGH WATER CONTENT IN THE SOIL (FROM HEAVY RAINFALL IN PREVIOUS 24 HOURS). THE THE ACTUAL SAMPLE DEPTH WAS ESTIMATED BASED ON THE SIDEWALLS CAVING INTO THE EXCAVATION.

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 580B PHOTOIONIZATION DETECTOR.

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INNOVATIVE
SERVICES
INTERNATIONAL, INC.

SITE PLAN

ENLISTED HOUSING UNIT #431

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

Geos Inc.

ANALYTICAL LABORATORY & CORPORATE OFFICES (904) 786-8340
1057 NORTH ELLIS ROAD, SUITE 17 (800) 770-4367 (GEOS)
JACKSONVILLE, FLORIDA 32254-2249 FAX: (904) 786-7489

GEOLOGICAL, ENVIRONMENTAL AND OCEANOGRAPHIC SCIENCES, INC.

ENVIRONMENTAL SPECIALTY LABORATORY (813) 6
5909A BRECKENRIDGE PARKWAY FAX: (813) 62
TAMPA, FLORIDA 33610-4237

ISI100014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

5 Jul 1995
Report J5-06-211-01
LAB ID. 82223/E82101

Sample Description:
N.A.S. CECIL FIELD
TEMP. MON WELL @ ENLISTED HOUSING #431
GROUNDWATER

SAMPLE ID.: ENL-431-695
COLLECTED: 06/22/95 13:23
RECEIVED: 06/22/95
COLLECTED BY: S.W. VOCKELL

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Hydrocarbons, Total IR	1.05		mg/L	418.1	0.200	06/27/95	06/28/95	AM
Lead, Total	0.024		mg/L	239.2	0.005	06/29/95	06/30/95	JC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	06/28/95	06/30/95	AT
Acenaphthylene	BDL		µg/L		10	06/28/95	06/30/95	AT
1-Methylnaphthalene	BDL		µg/L		10	06/28/95	06/30/95	AT
2-Methylnaphthalene	BDL		µg/L		10	06/28/95	06/30/95	AT
Acenaphthene	BDL		µg/L		10	06/28/95	06/30/95	AT
Fluorene	BDL		µg/L		10	06/28/95	06/30/95	AT
Phenanthrene	BDL		µg/L		10	06/28/95	06/30/95	AT
Anthracene	BDL		µg/L		10	06/28/95	06/30/95	AT
Fluoranthene	BDL		µg/L		10	06/28/95	06/30/95	AT
Pyrene	BDL		µg/L		10	06/28/95	06/30/95	AT
Benzo(a)anthracene	BDL		µg/L		10	06/28/95	06/30/95	AT
Chrysene	BDL		µg/L		10	06/28/95	06/30/95	AT
Benzo(b)fluoranthene	BDL		µg/L		10	06/28/95	06/30/95	AT
Benzo(k)fluoranthene	BDL		µg/L		10	06/28/95	06/30/95	AT
Benzo(a)pyrene	BDL		µg/L		10	06/28/95	06/30/95	AT
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	06/28/95	06/30/95	AT
Dibenzo(a,h)anthracene	BDL		µg/L		10	06/28/95	06/30/95	AT
Benzo(g,h,i)perylene	BDL		µg/L		10	06/28/95	06/30/95	AT
Surrogates								
Nitrobenzene-d5	39	Min: 35		Max: 114				
2-Fluorobiphenyl	48	Min: 43		Max: 116				
4-Terphenyl-d14	54	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	06/23/95	06/23/95	MD
Benzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Toluene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Ethyl benzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Xylene, Total	5.9		µg/L		1.0	06/23/95	06/23/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

5 Jul 1995
Report J5-06-211-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Chlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Surrogates								
Bromobenzene	89.2	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Chloromethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Bromomethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Vinyl chloride	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Chloroethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Methylene chloride	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Trichlorofluoromethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,1-Dichloroethene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,1-Dichloroethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
total-1,2-Dichloroethene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Chloroform	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,2-Dichlorethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,1,1-Trichloroethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Carbon tetrachloride	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Bromodichloromethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,2-Dichloropropane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
trans-1,3-Dichloropropene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Trichloroethene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Dibromochloromethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,1,2-Trichloroethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
cis-1,3-Dichloropropene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
2-Chloroethylvinyl ether	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Bromoform	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Tetrachloroethene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Chlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

5 Jul 1995
Report J5-06-211-01
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,4-Dichlorobenzene	BDL		µg/L		1.0	06/23/95	06/23/95	MD
Surrogates								
Bromobenzene	101	Min: 70		Max: 130				

Karen Foreman, Laboratory Director

CHAIN OF CUSTODY RECORD

Geos Inc.

☐ 1057 N. ELLIS ROAD, SUITE 17, JACKSONVILLE, FL 32254-2249 • (904) 786-8340
☐ 5909A BRECKENRIDGE PARKWAY, TAMPA, FL 33610-4237 • (813) 626-0101

JOB NUMBER: 95-6027

CLIENT NAME: ISI	PROJECT NAME: Cecil Field - Enlisted Housing
ADDRESS: Cecil Field	P. O. NUMBER / PROJECT NUMBER
	PROJECT LOCATION: Cecil Field - N.A.S.
PHONE: 778-2904 FAX:	
CONTACT: R. Boardman	SAMPLED BY: Scott W. Vockell

TURN AROUND TIME or RESULTS DUE BY:

☒ STANDARD ☐ VERBAL_____

☐ RUSH_____ ☐ FAX_____

☐ OTHER_____ ☐ HARD COPY_____

SPECIAL INSTRUCTIONS:

ANALYSIS REQUESTED

PRESERVATIVE										
CONTAINER SIZE AND TYPE	3x40ml VOA	1000ml HG	1000ml AG	500ml Plastic	HW					LAB USE
602, 602 w/ MTBE	X	X	X	X						
610	X	X	X	X						
TPH	X	X	X	X						
Pb	X	X	X	X						

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING DATE	SAMPLING TIME	* MATRIX	NO. OF CONTAIN.
ENL-431-695	Temp. Well @ Enlisted Housing #431	6/22/95	1323	GW	6

* GW—Groundwater SW—Surface Water DW—Drinking Water WW—Wastewater SO—Solid/Soil SL—Sludge HW—Hazardous Waste A—Air

FIELD PARAMETERS / COMMENTS:

TRANS. NO.	TRANSFERS RELINQUISHED BY:	ACCEPTED BY:	DATE	TIME
1	Scott W. Vockell	K Howell	6/23/95	16:16
2				
3				
4				

CONTAINERS/SEALS INTACT ☑ YES ☐ NO | ON ICE / 4°C ☑ YES ☐ NO | SHIPPED VIA

DISTRIBUTION: White—Client Copy Yellow—Lab Copy Pink—Sample Copy

APPENDIX B

MONITORING WELL INSTALLATION DETAIL

PROJECT: NAS Cecil Field BRAC UST Site		**LOG of WELL:** CEF-431-1S	**BORING NO.** CEF-431-1S
CLIENT: SOUTHDIVNAVFACENGCOM	**PROJECT NO:** 8571-03	**DATE STARTED:** 7-16-97	**COMPLETED:** 7-16-97
DRILLING SUBCONTRACTOR: Alliance		**SITE:** Quarters 431 (Housing)	**MONITOR INST.** PID
METHOD: 8.25" ID HSA	**WELL CASE DIAM.:** 2"	**SCREEN INT.:** 3-13 FT.	**SCREEN SLOT SIZE:** 0
TOC ELEVATION: FT. NGVD	**GROUND ELEV.:** FT. NGVD	**NORTHING:**	**EASTING:**
WELL DEVELOP. DATE: 7-23-97	**TOTAL DEPTH:** 14 FT. BLS	**DEPTH TO ▽** 3.10 FT. BLS	**LOGGED BY:** J tarr

DEPTH FT.	SAMPLE INTERVAL	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			0	SILTY SAND: White to light brown, fine grain with silt.		SM	posthole	
			140	SILTY SAND: Gray, fine grain with silt.			posthole	▽
5		50%	>5,000	SILTY SAND: Dark brown to black, fine grain with silt, construction debris throughout spoon and odor of heating oil.			2,3,4,>50	
10		0%	NA	SILTY SAND: No recovery due to construction debris (aluminum, concrete, etc.), but appears to be a silty sand based on auger cuttings.			14,3,2,8	
15								
20								

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 431 -- REPORT NO. 9544

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-431-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
BRACGREY ANAYLTICAL PARAMETERS				
1,1,1-Trichloroethane	1	U	ug/L	1
1,1,2,2-Tetrachloroethane	1	U	ug/L	1
1,1,2-Trichloroethane	1	U	ug/L	1
1,1-Dichloroethane	1	U	ug/L	1
1,1-Dichloroethene	1	U	ug/L	1
1,2-Dichlorobenzene	1	U	ug/L	1
1,3-Dichlorobenzene	1	U	ug/L	1
1,4-Dichlorobenzene	1	U	ug/L	1
1,2-Dichloroethane	1	U	ug/L	1
1,2-Dichloropropane	1	U	ug/L	1
1-Methylnaphthalene	2	U	ug/L	2
2-Methylnaphthalene	2	U	ug/L	2
Acenaphthene	2	U	ug/L	2
Acenaphthylene	2	U	ug/L	2
Anthracene	2	U	ug/L	2
Benzene	1	U	ug/L	1
Benzo (a) anthracene	.1	U	ug/L	.1
Benzo (a) pyrene	.1	U	ug/L	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2
Benzo (k) fluoranthene	.15	U	ug/L	.15
Bromodichloromethane	1	U	ug/L	1
Bromoform	1	U	ug/L	1
Bromomethane	1	U	ug/L	1
Carbon tetrachloride	1	U	ug/L	1
Chlorobenzene	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chloroform	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chrysene	.1	U	ug/L	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2
Dibromochloromethane	1	U	ug/L	1
Dichlorodifluoromethane	1	U	ug/L	1
Ethylbenzene	1	U	ug/L	1
Ethylene dibromide	.02	U	ug/L	.02
Fluoranthene	.2	U	ug/L	.2
Fluorene	2	U	ug/L	2
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1
Lead	5	U	ug/L	5
Methyl tert-butyl ether	1	U	ug/L	1
Methylene chloride	5	U	ug/L	5
Naphthalene	2	U	ug/L	2
Phenanthrene	2	U	ug/L	2
Pyrene	.2	U	ug/L	.2
Tetrachloroethene	1	U	ug/L	1
Toluene	1	U	ug/L	1
Total petroleum hydrocarbons	.72		mg/l	.5
Trichloroethene	1	U	ug/L	1
Trichlorofluoromethane	1	U	ug/L	1
Vinyl chloride	1	U	ug/L	1

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 431 -- REPORT NO. 9544

Lab Sample Number:	B7H0701520
Site	BRACGREY
Locator	CEF-431-1S
Collect Date:	06-AUG-97

	VALUE	QUAL	UNITS	DL
Xylenes (total)	1	U	ug/L	1
cis-1,3-Dichloropropene	1	U	ug/L	1
trans-1,2-Dichloroethene	1	U	ug/L	1
trans-1,3-Dichloropropene	1	U	ug/L	1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 440, TANK 440

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/139

Prepared by:

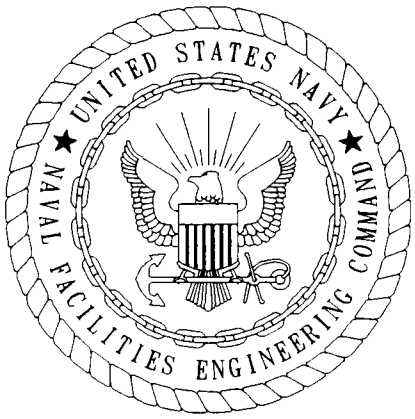
ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

March 1998



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/139 are complete and accurate and comply with all requirements of this contract.

DATE: March 5, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

CF-T440.CSR
SAS.03.98

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Confirmatory Sampling Report
Building 440, Tank 440
Naval Air Station Cecil Field
Jacksonville, Florida

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Confirmatory Sampling Report
Building 440, Tank 440
Naval Air Station Cecil Field
Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
FAC	Florida Administrative Code
ISI	Innovative Services International, Inc.
$\mu g/\ell$	micrograms per liter
UST	underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the confirmatory sampling for Tank 440 at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the confirmatory sampling.

Tank 440 was an underground storage tank (UST) located on the north side of Building 440, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for onsite heating (ABB-ES, 1997). Tank 440 was removed by Innovative Services International, Inc. (ISI), on May 3, 1995. A closure assessment report (Appendix A) was prepared for Tank 440 and submitted to the Florida Department of Environmental Protection (ISI, 1995). The closure assessment report indicated the presence of petroleum contamination (total volatile organic aromatic was 34 micrograms per liter [$\mu g/\ell$] and total naphthalenes was 93 $\mu g/\ell$), which was below State target levels. To assess the current groundwater quality at Tank 440, a contamination assessment plan was prepared by ABB-ES in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

The confirmatory sampling at Tank 440 was initiated in August 1997 and included

- the installation of one shallow groundwater monitoring well and
- collection and analysis of one groundwater sample.

One monitoring well, CEF-440-1S, was hand installed (the location was inaccessible to a drill rig) at the former UST location to a depth of 6 feet below land surface. One groundwater sample was collected on August 6, 1997, and analyzed for the Kerosene Analytical Group parameters. A general site plan indicating the location of monitoring well CEF-440-1S is presented on Figure 2. The monitoring well installation detail is included in Appendix B.

3.0 SCREENING AND ANALYTICAL RESULTS

Contaminant concentrations in groundwater were below the regulatory standards for Class G-II groundwater as specified in Chapter 62-770 of the Florida Administrative Code (FAC) (Table 1). The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

No contaminants were detected above regulatory standards specified in Chapter 62-770, FAC, in the groundwater sample collected from monitoring well CEF-440-1S. Therefore, no further action is recommended for the Tank 440 site.

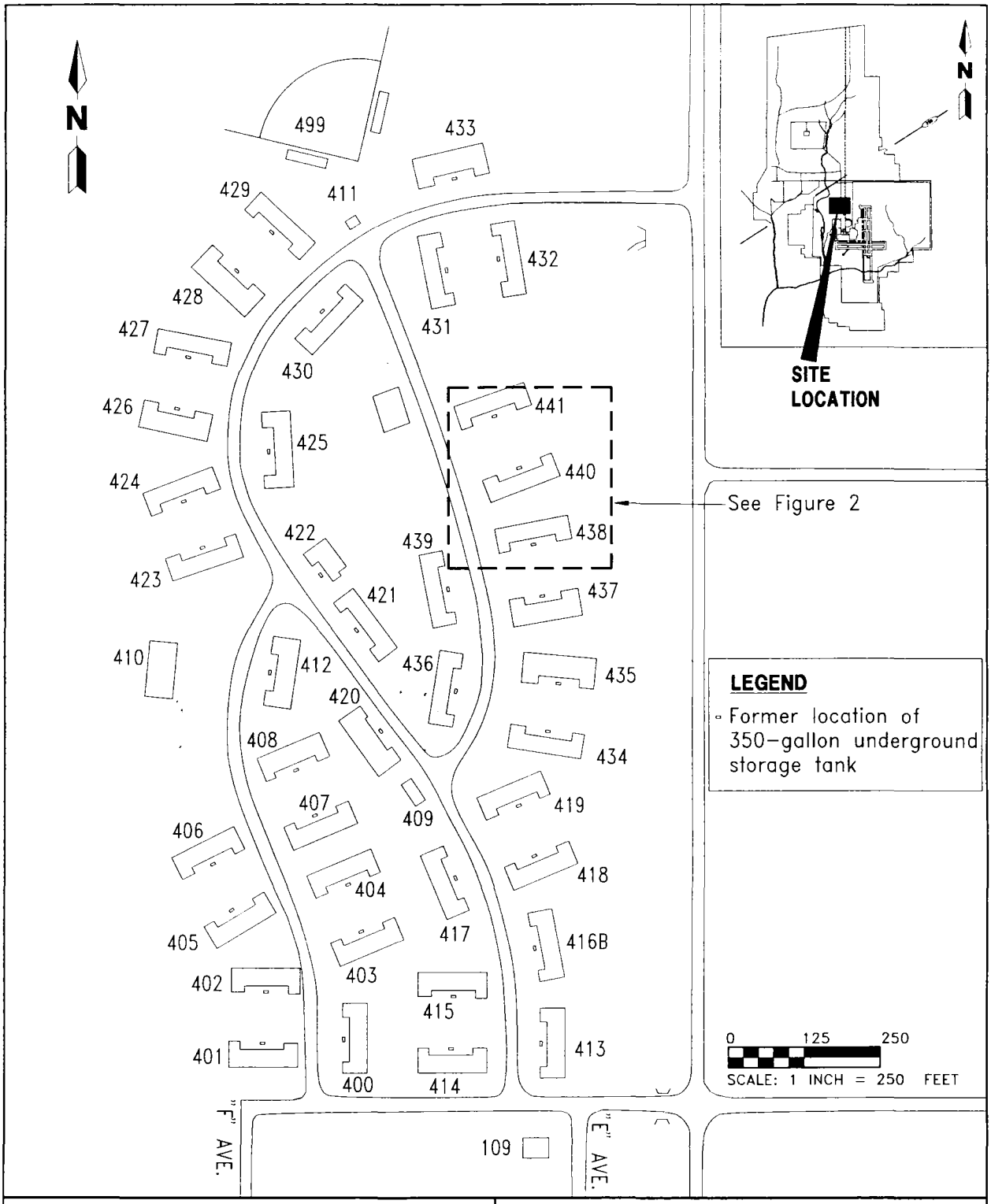

FIGURE 1
TANK 440
BASE FAMILY HOUSING

K:\02549\02549-03\CAR\02549516.DWG, NP 01/07/98 16:28:10, AutoCAD R12

CONFIRMATORY SAMPLING REPORT
BUILDING 440, TANK 440

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CF-T440.CSR
SAS.01.98

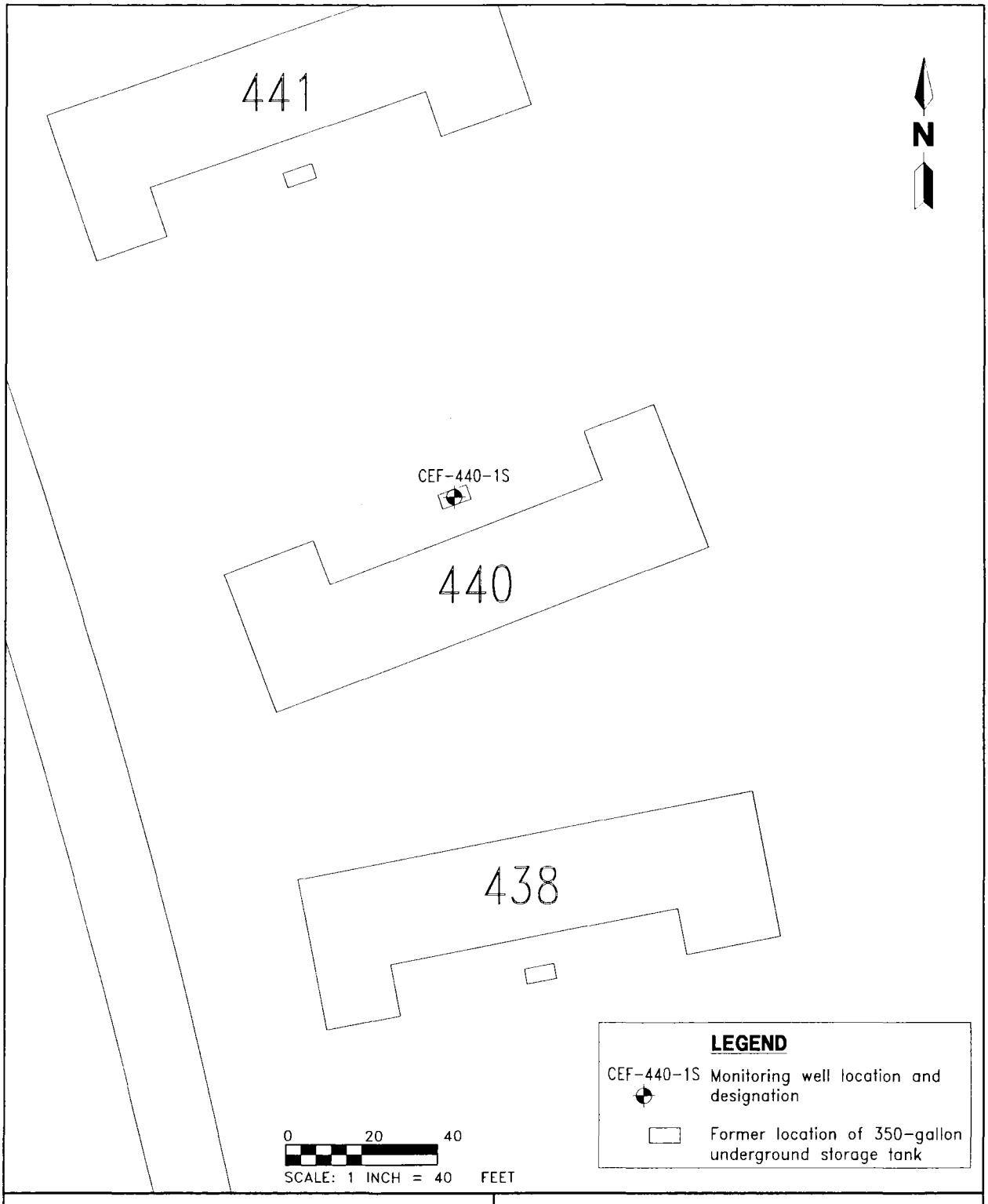

FIGURE 2
MONITORING WELL LOCATION

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CONFIRMATORY SAMPLING REPORT
BUILDING 440, TANK 440

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Summary of Groundwater Analytical Detections

Confirmatory Sampling Report
Building 440, Tank 440
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells		Groundwater Cleanup Target Levels[1]
	ISI Temporary Well	CEF-440-1S	
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Ethylbenzene	1.1	ND	30
Xylenes	33	7.9	20
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/ℓ)			
1-Methylnapthalene	40	13	NA
2-Methylnaphthalene	53	10	NA
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)			
TRPH	ND	2.5	5
Lead (USEPA Method 239.2) (µg/ℓ)			
Lead	60	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on May 5, 1995, and by ABB Environmental Services, Inc., on August 5, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
ND = compound not detected.
FL-PRO = Florida-Petroleum Residual Organic.
mg/ℓ = milligrams per liter.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida.*

APPENDIX A

CLOSURE ASSESSMENT REPORT

Florida Department of Environmental Regulation
Twin Towers Office Bldg • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761 (6)(a)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____ (Assigned by DER)

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: June 6, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Enlisted Housing Unit # 440
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (____) _____ 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or B. Underground
11. Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): (Circle one) A. Replaced B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One (1) 14. Age of Tanks: Unknown

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☒	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☐	☒		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: _____

Form No. 17-761.900(6)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____
Filled on by DER

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations, and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner — Date

Signature of Person Performing Assessment — Date: 7/12/90

Professional Geologist
Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene — 1 ug/l
   b. Total VOA — 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) — 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10 1990
DER Application No. _____ (Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Enlist Telephone: (____) _____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing #440
4. Owner Name: U.S. Navy Telephone: (____) _____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time _____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown
8. Date Work Initiated: 5/3/95 9. Date Work Completed: 5/5/95

underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these instututions.

Underground Pollutant Tank Removal Checklist

1. Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☒
   Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794
904-436-8300

Northeast District
7825 Baymeadows Way, Suite B 200
Jacksonville, Florida 32207
904-798-4200

Central District
3319 Maguire Blvd. Suite 232
Orlando, Florida 32803-3767
407-894-7555

Southwest District
4520 Oak Fair Blvd
Tampa, Florida 33610-7347
813-623-5561

South District
2269 Bay St
Fort Myers, Florida 33901-2896
813-332-6975

Southeast District
1900 S. Congress Ave., Suite A
West Palm Beach, Florida 33406
407-433-2650

DER Form # 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Roland Boardman — PCC054952

(Type or Print)
Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PSSSC Number

[signature] — 7-12-95

Certified Tank Contractor Signature — Date

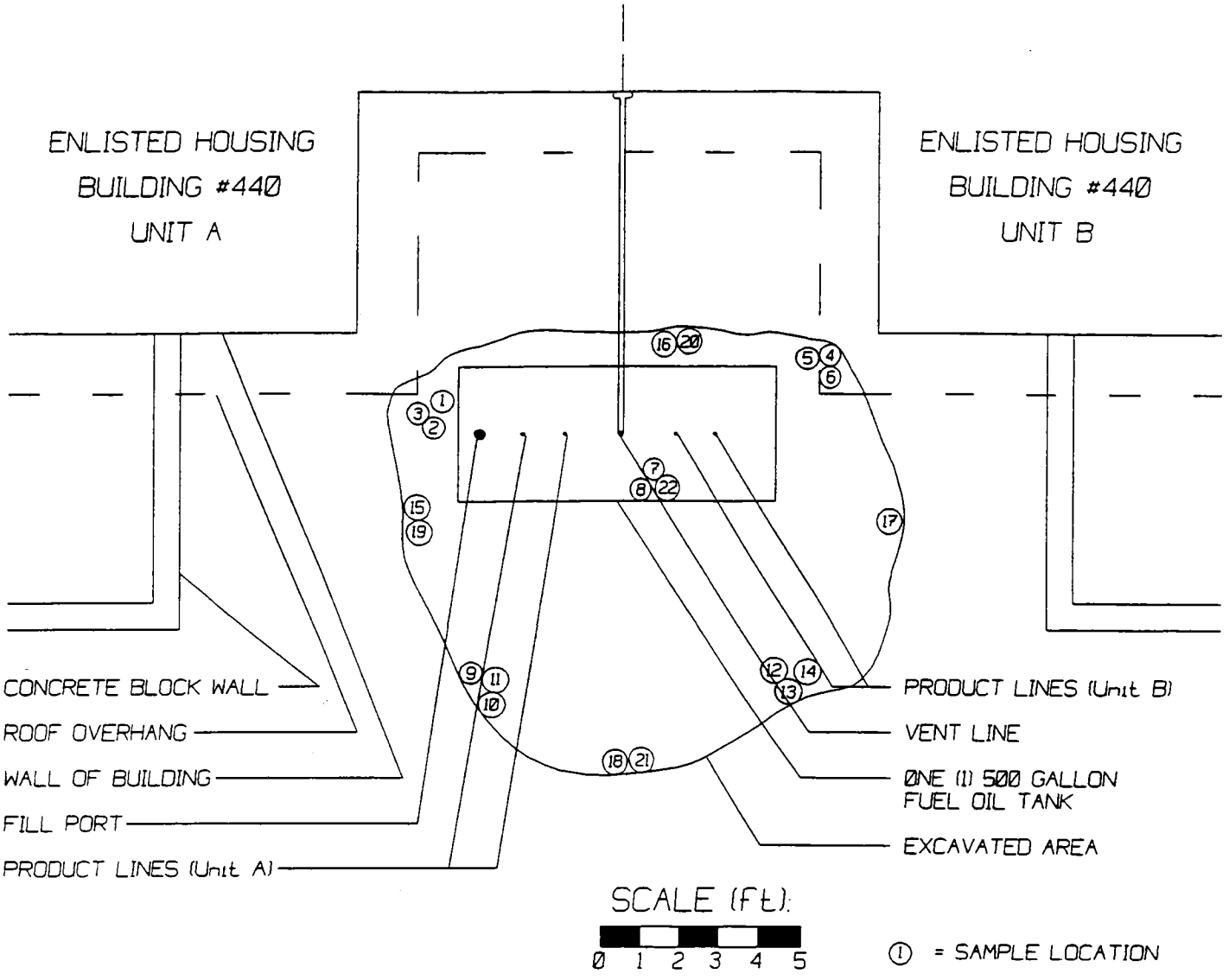
VERNON McKINNON — 7-12-95

(Type or Print)
Field Supervisor Name — Date

[signature] — 7-12-95

Field Supervisor Signature — Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.



SAMPLE NO.	HC READING	DEPTH	SAMPLE NO.	HC READING	DEPTH
1	0.0	1'	12	0.0	1'
2	0.0	2'	13	0.0	2'
3	0.0	3'	14	0.0	3'
4	0.0	1'	15	0.0	3'
5	0.0	2'	16	0.0	3'
6	0.0	3'	17	0.0	3'
7	0.0	1'	18	0.0	4'
8	0.0	2'	19	0.0	4'
9	0.0	1'	20	0.0	4'
10	0.0	2'	21	7.0	4'
11	0.0	3'	22	70.0	4'

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 580B PHOTOIONIZATION DETECTOR.

INNOVATIVE SERVICES INTERNATIONAL, INC.

SITE PLAN

ENLISTED HOUSING UNIT #440

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

16 May 1995
Report J5-05-070-02
LAB ID. 82223/E82101

Sample Description:
CECIL FIELD TANK PULLS / N.A.S. CECIL FIELD
BLDG. 440 MONITOR WELL
GROUNDWATER

SAMPLE ID.: 440
COLLECTED: 05/05/95 15:00
RECEIVED: 05/05/95
COLLECTED BY: J. BAKER

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: MONWEL MONITOR WELL ANALYSIS								
Hydrocarbons, Total IR	<0.200		mg/L	418.1	0.200	05/12/95	05/12/95	AM
Lead, Total	0.060		mg/L	239.2	0.005	05/09/95	05/11/95	KAC
Polynuclear Aromatics				625\8270				
Naphthalene	BDL		µg/L		10	05/11/95	05/16/95	AT
Acenaphthylene	BDL		µg/L		10	05/11/95	05/16/95	AT
1-Methylnaphthalene	40		µg/L		10	05/11/95	05/16/95	AT
2-Methylnaphthalene	53		µg/L		10	05/11/95	05/16/95	AT
Acenaphthene	BDL		µg/L		10	05/11/95	05/16/95	AT
Fluorene	BDL		µg/L		10	05/11/95	05/16/95	AT
Phenanthrene	BDL		µg/L		10	05/11/95	05/16/95	AT
Anthracene	BDL		µg/L		10	05/11/95	05/16/95	AT
Fluoranthene	BDL		µg/L		10	05/11/95	05/16/95	AT
Pyrene	BDL		µg/L		10	05/11/95	05/16/95	AT
Benzo(a)anthracene	BDL		µg/L		10	05/11/95	05/16/95	AT
Chrysene	BDL		µg/L		10	05/11/95	05/16/95	AT
Benzo(b)fluoranthene	BDL		µg/L		10	05/11/95	05/16/95	AT
Benzo(k)fluoranthene	BDL		µg/L		10	05/11/95	05/16/95	AT
Benzo(a)pyrene	BDL		µg/L		10	05/11/95	05/16/95	AT
Indeno(1,2,3-c,d)pyrene	BDL		µg/L		10	05/11/95	05/16/95	AT
Dibenzo(a,h)anthracene	BDL		µg/L		10	05/11/95	05/16/95	AT
Benzo(g,h,i)perylene	BDL		µg/L		10	05/11/95	05/16/95	AT
Surrogates								
Nitrobenzene-d5	73	Min: 35		Max: 114				
2-Fluorobiphenyl	51	Min: 43		Max: 116				
4-Terphenyl-d14	84	Min: 33		Max: 141				
Volatile Aromatics				602				
Methyl-tert-butyl ether	BDL		µg/L		5.0	05/09/95	05/09/95	MD
Benzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

16 May 1995
Report J5-05-070-02
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Toluene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Ethyl benzene	1.1		µg/L		1.0	05/09/95	05/09/95	MD
Xylene, Total	33		µg/L		1.0	05/09/95	05/09/95	MD
Chlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Surrogates								
Bromobenzene	91.8	Min: 70		Max: 130				
Volatile Halocarbons				601				
Dichlorodifluoromethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Chloromethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Bromomethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Vinyl chloride	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Chloroethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Methylene chloride	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Trichlorofluoromethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,1-Dichloroethene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,1-Dichloroethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
total-1,2-Dichloroethene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Chloroform	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,2-Dichlorethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,1,1-Trichloroethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Carbon tetrachloride	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Bromodichloromethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,2-Dichloropropane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
trans-1,3-Dichloropropene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Trichloroethene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Dibromochloromethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,1,2-Trichloroethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
cis-1,3-Dichloropropene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
2-Chloroethylvinyl ether	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Bromoform	BDL		µg/L		1.0	05/09/95	05/09/95	MD

ISII00014396
Attn: RON BOARDMAN

P.O. BOX 150016
NAS CECIL FIELD, FL
32215

16 May 1995
Report J5-05-070-02
LAB ID. 82223/E82101

Parameter	Result		Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Tetrachloroethene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Chlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,3-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,2-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
1,4-Dichlorobenzene	BDL		µg/L		1.0	05/09/95	05/09/95	MD
Surrogates								
Bromobenzene	90.5	Min: 70		Max: 130				

Karen Foreman, Laboratory Director

APPENDIX B

MONITORING WELL INSTALLATION DETAIL

TITLE: NAS Cecil Field	**LOG of WELL:** CEF-440-1S	**BORING NO.** CEF-440-1S
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 2549-02
CONTRACTOR: ABB Environmental	**DATE STARTED:** 8-4-97	**COMPLTD:** 8-4-97
METHOD: 4" Hand Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 1 - 6 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 6FT.	**DPTH TO ▽** 2.5 FT.
LOGGED BY: J Koch	**WELL DEVELOPMENT DATE:**	**SITE:** Building 428

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			100%	0			SM	hand auger	
1					SILTY SAND: Dark brown to black, fine grained, with roots.				
2			100%	150				hand auger	▽
3					SILTY SAND: Dark brown to black, fine grained, wet, petroleum odor.				
4			100%	180				hand auger	
5					SILTY SAND: Dark brown to black, fine grained, strong petroleum odor.				
6									
7									
8									

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 440 -- REPORT NO. 9543

Lab Sample Number:	B7H0601200
Site	BRACGREY
Locator	CEF-440-1S
Collect Date:	05-AUG-97

	VALUE	QUAL	UNITS	DL
BRACGREY ANAYLTICAL PARAMETERS				
1,1,1-Trichloroethane	1	U	ug/L	1
1,1,2,2-Tetrachloroethane	1	U	ug/L	1
1,1,2-Trichloroethane	1	U	ug/L	1
1,1-Dichloroethane	1	U	ug/L	1
1,1-Dichloroethene	1	U	ug/L	1
1,2-Dichlorobenzene	1	U	ug/L	1
1,3-Dichlorobenzene	1	U	ug/L	1
1,4-Dichlorobenzene	1	U	ug/L	1
1,2-Dichloroethane	1	U	ug/L	1
1,2-Dichloropropane	1	U	ug/L	1
1-Methylnaphthalene	13		ug/L	2
2-Methylnaphthalene	10		ug/L	2
Acenaphthene	2	U	ug/L	2
Acenaphthylene	2	U	ug/L	2
Anthracene	2	U	ug/L	2
Benzene	1	U	ug/L	1
Benzo (a) anthracene	.1	U	ug/L	.1
Benzo (a) pyrene	.1	U	ug/L	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2
Benzo (k) fluoranthene	.15	U	ug/L	.15
Bromodichloromethane	1	U	ug/L	1
Bromoform	1	U	ug/L	1
Bromomethane	1	U	ug/L	1
Carbon tetrachloride	1	U	ug/L	1
Chlorobenzene	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chloroform	1	U	ug/L	1
Chloromethane	1	U	ug/L	1
Chrysene	.1	U	ug/L	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2
Dibromochloromethane	1	U	ug/L	1
Dichlorodifluoromethane	1	U	ug/L	1
Ethylbenzene	1	U	ug/L	1
Ethylene dibromide	.02	U	ug/L	.02
Fluoranthene	.2	U	ug/L	.2
Fluorene	2	U	ug/L	2
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1
Lead	5	U	ug/L	5
Methyl tert-butyl ether	1	U	ug/L	1
Methylene chloride	5	U	ug/L	5
Naphthalene	2	U	ug/L	2
Phenanthrene	2	U	ug/L	2
Pyrene	.2	U	ug/L	.2
Tetrachloroethene	1	U	ug/L	1
Toluene	1	U	ug/L	1
Total petroleum hydrocarbons	2.5		mg/L	.5
Trichloroethene	1	U	ug/L	1
Trichlorofluoromethane	1	U	ug/L	1
Vinyl chloride	1	U	ug/L	1

NAS CECIL FIELD -- BRAC UST GREY BASE FAMILY HOUSING
GROUNDWATER -- ANALYTICAL DATA -- TANK 440 -- REPORT NO. 9543

Lab Sample Number:	B7H0601200
Site	BRACGREY
Locator	CEF-440-1S
Collect Date:	05-AUG-97

	VALUE	QUAL	UNITS	DL
Xylenes (total)	7.9		ug/L	1
cis-1,3-Dichloropropene	1	U	ug/L	1
trans-1,2-Dichloroethene	1	U	ug/L	1
trans-1,3-Dichloropropene	1	U	ug/L	1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NEW DOCUMENT

CONFIRMATORY SAMPLING REPORT

BUILDING 860, OIL-WATER SEPARATOR 860-OW

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GRAY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/149

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

April 1999

Revision 1.0

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/149 are complete and accurate and comply with all requirements of this contract.

DATE: April 27, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Naval Air Station Cecil Field
Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
BRAC	Base Realignment and Closure
FDEP	Florida Department of Environmental Protection
OVA	organic vapor analyzer

1.0 INTRODUCTION

Harding Lawson Associates, under contract to the Southern Division, Naval Facilities Engineering Command, has completed confirmatory sampling for oil-water separator 860-OW at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations.

Oil-water separator 860-OW is located north of Building 860, a maintenance hangar located on the west aircraft parking apron (ABB Environmental Services, Inc. [ABB-ES], 1994) (Figure 1). The oil-water separator was installed in 1981, has a 9,000 gallon capacity, and is used to separate and store used oil from hangar activities.

A confirmatory sampling report dated December 1997 was prepared for oil-water separator 860-OW and recommended that soil sampling be conducted at the site during tank closure and removal (ABB-ES, 1997). However, the petroleum subcommittee recommended that the soil be assessed prior to removal. This report presents the results of the soil assessment as well as the groundwater data collected to date.

2.0 FIELD INVESTIGATION

The confirmatory sampling for oil-water separator 860-OW was initiated in September, 1998 and included

- the advancement of four soil borings to the water table,
- collection and analysis of one subsurface soil sample.

Soil samples were collected from each boring at depth intervals of 1 foot below land surface (bls) and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA).

One subsurface soil sample was collected on October 13, 1998 and analyzed for the Used Oil Group parameters. Sample CEF-860-SB2 was collected from 1 to 2 feet bls at the location of soil screening boring SB2.

Four compliance monitoring wells were previously installed at the oil-water separator. The two downgradient monitoring wells, CEF-864-3S (Sample 40G00101) and CEF-864-4S (Sample 40G00201), were sampled during the Base Realignment and Closure (BRAC) investigation of Building 860.

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil (greater than 50 parts per million on an OVA) was not detected in any of the four soil borings advanced during the confirmatory sampling. The soil OVA data are summarized in Table 1 and presented on Figure 1.

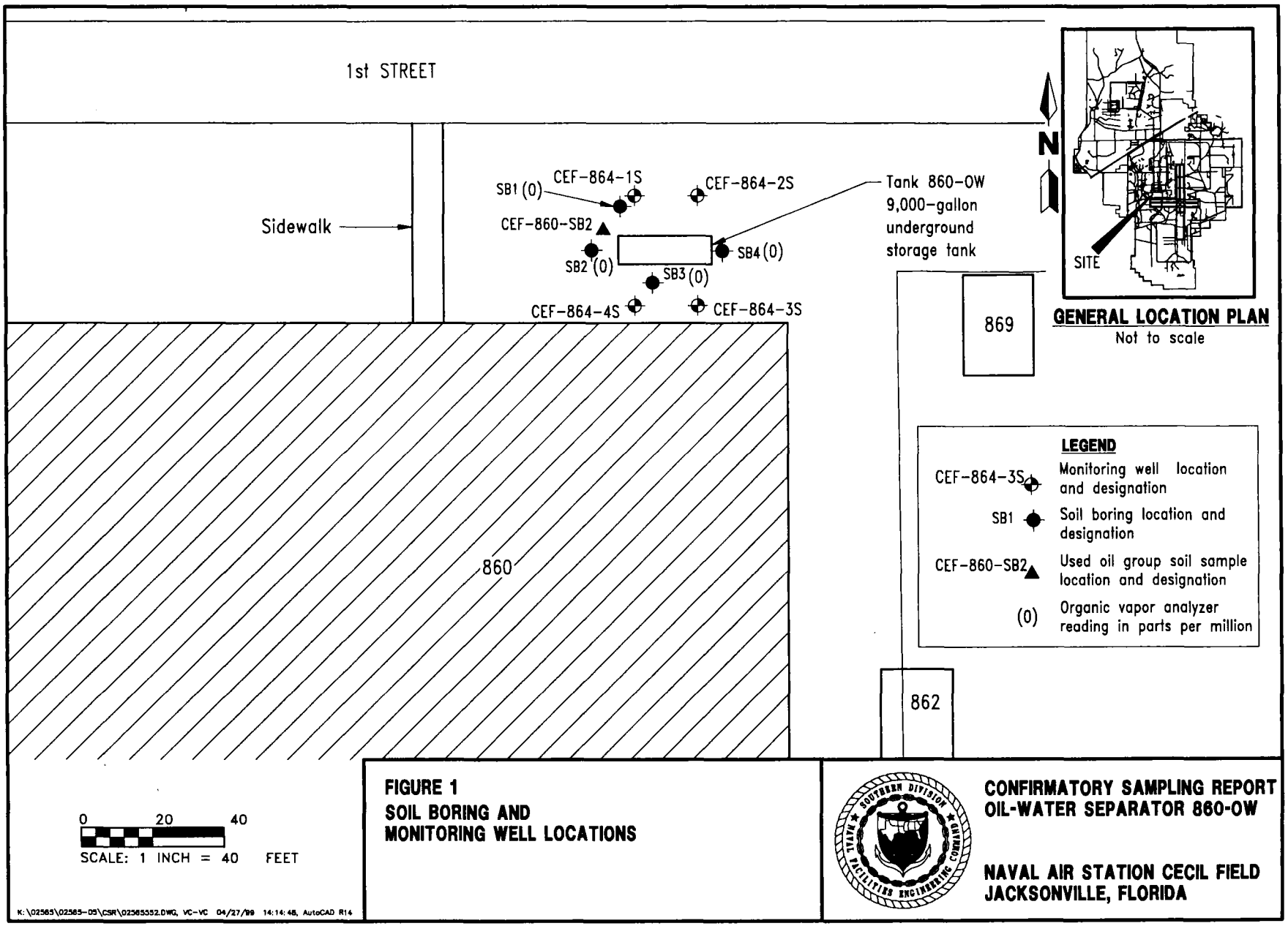

FIGURE 1
SOIL BORING AND
MONITORING WELL LOCATIONS

CONFIRMATORY SAMPLING REPORT
OIL-WATER SEPARATOR 860-OW

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 1
Soil Screening Results

Confirmatory Sampling Report
Building 860, Oil-water Separator 860-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB1	1	0	--	0
	2.5 (wet)	0	--	0
SB2	1	0	--	0
	2 (moist)	0	--	0
SB3	1	0	--	0
	2 (wet)	0	--	0
SB4	1	0	--	0
	2.5 (wet)	0	--	0

Notes: OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
-- = filtered readings were not collected.
wet = soil sample was completely saturated when analyzed.
moist = soil sample was partially saturated when analyzed.

No contaminants were detected above Florida Department of Environmental Protection (FDEP) soil cleanup target levels in the subsurface soil sample collected for used oil analysis. Subsurface soil analytical results are summarized in Table 2 and presented in Appendix A.

No contaminants were detected above FDEP groundwater cleanup target levels in the groundwater samples collected from monitoring wells CEF-864-3S and CEF-864-4S during the BRAC investigation. A summary of the groundwater analytical results is presented in Table 3. The complete analytical data set is presented in Appendix A.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling of oil-water separator 860-OW did not indicate the presence of soil or groundwater contamination at levels above cleanup target levels.

It is recommended that no further action take place at the oil-water separator site until it is removed.

Table 2
Summary of Subsurface Soil Analytical Detections

Site Assessment Report
Building 860, Oil-water Separator 860-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-860-SB2 (1 to 2 feet bls; OVA = 0 ppm)	Soil Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)		
Tetrachloroethene	0.018	NA
Toluene	0.0042	300/0.4
Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)		
Not detected.		
Total Recoverable Petroleum Hydrocarbons (FL-PRO) (mg/kg)		
Not detected.		
Inorganic Analytes (mg/kg)		
Chromium	4.6	290/TCLP
Lead	10 J	500/TCLP
Mercury	0.019	3.7/TCLP

[1] Chapter 62-770, Florida Administrative Code: Direct Exposure, Table 1/Leachability, Table V.

Notes: bls = below land surface.
OVA = organic vapor analyzer.
ppm = parts per million.
USEPA = U.S. Environmental Protection Agency.
mg/kg = milligrams per kilogram.
NA = not applicable.
FL-PRO = Florida-Petroleum Residual Organics.
TCLP = toxicity characteristic leaching procedure.
J = estimated value.

Table 3
Summary of Groundwater Analytical Results

Confirmatory Sampling Report
Building 860, Oil-water Separator 860-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-864-3S (Sample 40G00101)	CEF-864-4S (Sample 40G00201)	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)			
Not detected.			
Polynuclear Aromatic Hydrocarbons (USEPA Method 625) (µg/ℓ)			
Not detected.			
Total Recoverable Petroleum Hydrocarbons (FL-PRO) (mg/ℓ)			
Not detected.			
Inorganic Analytes (µg/ℓ)			
Barium	43.5 J	75.5 J	2,000
Lead	2.1 J	ND	15

[1] Chapter 62-770, Florida Administrative Code.

Notes: USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
FL-PRO = Florida Petroleum Residual Organics.
mg/ℓ = milligrams per liter.
J = estimated value.
ND = not detected.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1994. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Confirmatory Sampling Report, Building 860, Tank 860-OW, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (December).

APPENDIX A

ANALYTICAL DATA